USING THIS BULLETIN

Introduction
The Undergraduate Bulletin is Penn State’s comprehensive source for undergraduate academic information and program requirements.

Use this section and navigation tools throughout the site to become familiar with general Bulletin information and discover new ways to explore academic opportunities across Pennsylvania and the world.

Students should follow the edition of the Bulletin that is active on their first day of class at the University. Past versions can be found on the Archive (https://bulletins.psu.edu/undergraduate/archive/) page.

New Features
Program Page Layout
- Consistent layout of program information organized within the following tabs:
  - Overview
  - How to Get In
  - Program Requirements (University Degree, Bachelor of Arts Degree, General Education, and Major requirements)
  - Integrated Undergrad-Grad Program
  - Learning Outcomes
  - Academic Advising
  - Suggested Academic Plan
  - Career Paths
  - Contact

Begin and End Campus
At the top each program page, you will find a box that indicates where you can begin and end a program. Programs may have different begin and end campuses, so it is important to use this information to determine program availability at each campus.

How to Get In
This section describes requirements on how to enter your major. Common examples include, but are not limited to, minimum GPA and/or successful completion of a skills test, coursework, or preparation programs.

Suggested Academic Plan
The course series provided in the Suggested Academic Plan provides only one of many possible ways to move through the curriculum.

To create a personalized academic plan, begin by taking the following steps:
- Consult with a Penn State academic adviser on a regular basis to develop and refine your academic plan.
- Use the Suggested Academic Plan in conjunction with your degree audit (accessible in LionPATH as either an Academic Requirements or What If report).
- Familiarize yourself with information available in this Bulletin to learn about academic opportunities.
- Explore resources available on your college and campus websites.

Please note that the University may make changes in policies, procedures, educational offerings, and requirements.

Changes Page
- Real-time amendments to information in the Bulletin will be tracked on the Changes (p. 6) page.
- Currently or previously enrolled students should consult the Bulletin Archive (https://bulletins.psu.edu/undergraduate/archive/), their adviser, and degree audit reports for specific requirements.

Course Bubble
When a course link is clicked, a course bubble will appear with important course information including, but not limited to:
- course title, description, and credits;
- prerequisites;
- course attributes and General Education learning objectives;
- if the course is repeatable;
- if the course is cross-listed;
- if the course can be counted towards General Education requirements.

Nondiscrimination Statement
The University is committed to equal access to programs, facilities, admission and employment for all persons. It is the policy of the University to maintain an environment free of harassment and free of discrimination against any person because of age, race, color, ancestry, national origin, religion, creed, service in the uniformed services (as defined in state and federal law), veteran status, sex, sexual orientation, marital or family status, pregnancy, pregnancy-related conditions, physical or mental disability, gender, perceived gender, gender identity, genetic information or political ideas. Discriminatory conduct and harassment, as well as sexual misconduct and relationship violence, violates the dignity of individuals, impedes the realization of the University’s educational mission, and will not be tolerated. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Office, The Pennsylvania State University, 328 Boucke Building, University Park, PA 16802-5901, Email: aao@psu.edu, Tel (814) 863-0471.

Start Exploring
The Undergraduate Bulletin is Penn State’s comprehensive source for undergraduate academic information and program requirements. Using the search features, explore options to design your own, unique academic path at one of the world’s leading research institutions. Discover new opportunities as you pursue your academic passion. Search boxes are located on the Undergraduate Bulletin landing page and throughout the website.

Narrow your search by using the following fields:

Degree Type
Choose the degree type to begin your search. Information on the following degrees are included in the Undergraduate Bulletin:

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

Baccalaureate Degree
Baccalaureate programs of study consist of no less than 120 credits and typically take four years to complete.
Minor
An academic program of at least 18 credits that supplements a major. A minor program may consist of course work in a single area or from several disciplines.

Undergraduate Certificate
Undergraduate certificates can reflect emerging academic areas, necessary professional development requirements, or groups of courses that do not constitute a degree program.

Previous Versions of Course Description Information
If a course description is updated after the beginning of an academic year, the previous course description information for that course can be found on the Changes to the UG Bulletin page (p. 6). Course description information from past years can be found in the appropriate archived Bulletin edition (https://bulletins.psu.edu/undergraduate/archive/).

Definitions and Abbreviations
Described below are definitions referring to degrees, majors, options, minors, concurrent or sequential majors programs, and integrated undergraduate-graduate degree programs:

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

Baccalaureate Degree
Penn State offers more than 160 majors with four-year baccalaureate degrees. A baccalaureate program of study shall consist of no less than 120 credits. Students may elect to take courses beyond the minimum requirements of a degree program. Particular types of baccalaureate degrees identify educational programs having common objectives and requirements. Degree programs may provide academic, pre-professional, or professional experiences and preparation. Majors lead to a baccalaureate degree. Each student must select a major within a baccalaureate degree type. If options are offered within a major, a student selects one. The student may also elect to enroll in a minor to supplement the major. Alternatively, the student may seek to enroll in multiple majors within the same type of baccalaureate degree or to enroll in a simultaneous degree program.

Undergraduate majors offered at Penn State lead to one or more of the following baccalaureate degrees: Bachelor of Arts, Bachelor of Science, Bachelor of Architectural Engineering (five-year program), Bachelor of Architecture (five-year program), Bachelor of Design, Bachelor of Fine Arts, Bachelor of Humanities, Bachelor of Landscape Architecture (five-year program), Bachelor of Music, Bachelor of Musical Arts, and Bachelor of Philosophy.

Not all degrees are offered at every location. Baccalaureate degrees offered at Penn State include both those that are designed to provide an academic (including pre-professional) experience and those that are specifically designed to provide professional preparation.

To ensure excellence, all professionally oriented degree majors provide a strong academic base. The Bachelor of Arts degree (with a given major) is an academic degree; the Bachelor of Science degree (with a given major) and the bachelor’s degree in any subject area (e.g., Bachelor of Architecture) are professional degrees.

Undergraduate majors offered at Penn State lead to one or more of the following baccalaureate degree programs: Bachelor of Arts, Bachelor of Science, Bachelor of Architectural Engineering, Bachelor of Architecture, Bachelor of Design, Bachelor of Fine Arts, Bachelor of Humanities, Bachelor of Landscape Architecture, Bachelor of Music, Bachelor of Musical Arts, and Bachelor of Philosophy. Not all degrees are offered at every location. Baccalaureate degrees offered at Penn State include both those that are designed to provide an academic (including pre-professional) experience and those that are specifically designed to provide professional preparation.

To ensure excellence, all professionally oriented degree majors provide a strong academic base. The Bachelor of Arts degree (with a given major) is an academic degree; the Bachelor of Science degree (with a given major) and the bachelor’s degree in any subject area (e.g., Bachelor of Architecture) are professional degrees.
degree, described in the Intercollege Undergraduate Programs section of this Bulletin, is planned individually and may be designed to serve either academic or professional purposes.

**Major**
A major is a plan of study in a field of concentration within a type of baccalaureate degree. Colleges and other degree-granting units may have common requirements for all of their majors. Each major may have requirements identified in prescribed, additional, and supporting courses and related areas categories. Elective credits are not considered part of the major.

MORE INFORMATION ABOUT MAJORS (http://senate.psu.edu/curriculum/guide-to-curricular-procedures/baccalaureate-degree-curriculum/)

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

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

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

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

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

### Abbreviations, Acronyms, and Codes
Described below are common codes, abbreviations, acronyms, and other types of academic shorthand used at Penn State, along with a brief explanation of each.

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<th>Explanation</th>
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<td>Special topics (course suffix; indicates different versions of the same course, e.g., CAS 100A, CAS 100B, CAS 100C)</td>
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<td>A &amp; A</td>
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<td>AA</td>
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<td>AAPPM</td>
<td>Academic Administrative Policies and Procedures Manual</td>
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<td>AB</td>
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<td>AG</td>
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<td>AP</td>
<td>Advanced Placement Program</td>
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<td>APPL</td>
<td>Course requires an application with the School of Music (course characteristic)</td>
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<td>APPT</td>
<td>By appointment (class meeting time)</td>
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<td>AU</td>
<td>Audit, attended regularly (grade reporting symbol)</td>
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<tr>
<td>AUDN</td>
<td>Course requires an audition (course characteristic)</td>
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<td>AUU</td>
<td>Audit, did not attend regularly (grade reporting symbol)</td>
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<td>B</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., CAS 100A, CAS 100B, CAS 100C)</td>
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<td>BK</td>
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<td>BK</td>
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<td>C</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., CAS 100A, CAS 100B, CAS 100C)</td>
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<td>CALC</td>
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<td>CAMP</td>
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<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>CCP</td>
<td>College Contact Person</td>
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<tr>
<td>CCRR</td>
<td>College Contact and Referral Representative</td>
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<td>CCGS</td>
<td>Council of Commonwealth Student Governments</td>
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<td>CE</td>
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<td>CGPA</td>
<td>Cumulative grade-point average</td>
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<td>CIC</td>
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<td>CLEP</td>
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<td>CM</td>
<td>Communications (college code)</td>
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<tr>
<td>CNCR</td>
<td>Course is scheduled concurrently with another course (course characteristic)</td>
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<tr>
<td>CNTL</td>
<td>Course is controlled (course characteristic)</td>
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<tr>
<td>COMM</td>
<td>Communications (college abbreviation)</td>
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<td>CORD</td>
<td>Course is coordinated with other course(s) (course characteristic)</td>
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<td>COST</td>
<td>Course requires an additional fee (course characteristic)</td>
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<td>D</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297D, HIST 297E)</td>
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<td>DAA</td>
<td>Dean/Director of Academic Affairs</td>
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<td>DF</td>
<td>Deferred grade (grade reporting symbol)</td>
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<td>DN</td>
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<td>Division of Undergraduate Studies (college abbreviation)</td>
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<td>E</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297D, HIST 297E)</td>
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<td>Eberly College of Science</td>
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<td>EM SC</td>
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<td>EOP</td>
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<td>EPR</td>
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<td>EPS</td>
<td>Educational Planning Survey</td>
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<td>ER</td>
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<td>ESL</td>
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<td>EVEX</td>
<td>Course has evening exams (course characteristic)</td>
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<td>F</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297F, HIST 297G)</td>
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<td>FE</td>
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<td>FINL</td>
<td>Course has a final exam (course characteristic)</td>
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<td>FL</td>
<td>Failure under pass/fail option (grade reporting symbol)</td>
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<td>FYS</td>
<td>First-Year Seminar</td>
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<td>G</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297F, HIST 297G)</td>
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<td>GA</td>
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<td>GPA</td>
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<td>GWS</td>
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<td>I</td>
<td>Incomplete (grade reporting symbol)</td>
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<td>I</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297I, HIST 297K)</td>
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<td>IC</td>
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<td>IL</td>
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<td>Student Orientation and Transition Programs</td>
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<td>T</td>
<td>First-Year Seminar and Honors (course suffix)</td>
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<td>TMDT</td>
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<td>U</td>
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<td>UAO</td>
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Common abbreviations for course attributes and suffixes can be found in the University Course Descriptions (https://bulletins.psu.edu/university-course-descriptions/) section.

**Changes to the Undergraduate Bulletin**

Changes to the Undergraduate Bulletin will be tracked in real-time and listed below. At the end of every semester, these updates are incorporated into the Bulletin.

**Courses Added: Effective Summer 2022**

- ADTED 300: Social Movements and Education: Global Perspectives
- AG 180N: Contemporary Issues in Food, Ag, Natural Resources, and Human Sciences
- ANTH 100N: Anthropology of Race and Racism
- ANTH 434N: Black Ecologies
- ARCH 130B: Basic Design and Research II
- ARCH 482: Foundations in Shape Grammars
- ARTH 260: Museum Marketing & Communications
- ASTRO 476: The Search for Extraterrestrial Intelligence
- BBH 330: Clinic Intern Training
- BBH 426: HealthWorks Peer Education Experience
- BBH 475H: Honors Biobehavioral Analysis of Addiction
- BIOL 128: Investigations in Anatomy with Cadavers
- BIOL 477: Biology Cadaver Dissection
- BIOL 484: Biodiversity of Pennsylvania
- BIOL 489: Biology of Ecohealth in Tanzania
- CHE 396: Independent Studies
- CMLIT 7: Introduction to Middle Eastern Literatures
- CMPSC 330: Advanced Programming in C++
- CMPSC 446: Data Mining
- CMPSC 466: Introduction to Quantum Computation
- CMPSC 476: Systems Debugging
- COMM 300H: Bellisario Honors Colloquium
- COMM 428F: Strategic Communications Campaign Planning
- DS 305: Algorithmic Methods and Tools
- DS 499: Foreign Studies
- DS 440W: Data Science Capstone
- EARTH 10: Energy and Earth’s Climate
- EDUC 414: Teaching Secondary Science
- ENGL 10: Group Writing Tutorial
- ENT 440: Plant-Insect Interactions
- ENVS 425: Environmental Communication
- ERM 429: The Chesapeake Bay Watershed: Issues and Careers in Complex Environmental Problem Solving
- FIN 426: Analysis of Interest Rates and Debt Markets
- FIN 480: Alternative Investments
- FRN 490: Traceology & Event Reconstruction
- FRNSC 412: Laboratory in Criminalistics: Trace and Impression Evidence
- GD 107: Graphic Design Studio – Components
- GD 207: Graphic Design Studio – Products
- GEOG 4: Earth and Environmental Systems Geography
- GER 115N: Science, Humanity and Catastrophe
- HLS 495: Homeland security internship
- HM 210N: The Impact of Culture and Customs in Global Hospitality Environments
- HPA 123S: Exploring Health Policy and Administration
- HPA 438: Culturally Competent Health Services for Diverse Populations
- IST 144N: Invasion of Technology from a 21st Century Perspective
- KINES 29C: Total Golf in Pennsylvania
- KINES 50: Lifeguarding
Courses Added: Effective Fall 2022

- AE 240: Programming and Data Science for Architectural Engineering
- AE 494H: Honors Thesis
- AFR 234: Environment, Climate Change and Resilience in Africa
- ANSC 480: Animal Growth and Development
- ANTH 430: Ancient Brews
- BBH 310H: Research Strategies for Studying Biobehavioral Health
- BIOL 462: History of Biology
- CMPSC 204: Introduction to Computational Sciences Programming
- CMPSC 205: Intermediate Computational Sciences Programming
- CMPSC 301: Event Driven Programming for Computational Sciences
- CMPSC 348: Data Science and Machine Learning for Computational Sciences
- DA 302W: Predictive Analytics
- DANCE 383: Performance Devising

Courses Dropped: Effective Summer 2022

- EET 310: Direct and Alternating Current Circuits
- ENGL 120: Difference in Early Literature
- ENGL 260: Theory & Practice of Screenwriting
- ENGR 185: Short Term/Short Duration Internship
- ERMD 89: Supervised Experience in College Teaching
- FDSC 223: Understanding Science Through Wine Beer and Bread
- FOR 49: Supervised Experience in College Teaching
- FRNSC 425: Chromatography and Spectroscopy in Forensic Science
- HDF Steer & Practice of Social Problems & How to Help
- HDF 485: Supporting Healthy Development: Understanding Systems, Successes, and Challenges
- HIST 194: Jerusalem: Sacred and Profane
- HM 101: Exploring the Global Hospitality Industry
- LDT 215: Creating Designs for Learning
- LDT 410: Advanced Learning Experience Design Lab
- LPE 496: Individual Studies
- LPE 497: Special Topics
- MATH 490H: Honors Student Colloquium
- METEO 7: An Introduction to Climate Sciences: Climate change, Variability, and Society
- MUSIC 189: Studio Ensemble
- NUTR 460: Nutritional Neuroscience
- PHYS 337: Introduction to Quantum Information Science and Engineering
- PHYS 437: Physical implementation of qubits
- PUBPL 120N: State, Society, and Public Policy
- RHS 226: College Student Mental Health and Wellness
- RM 421: Short Term Actuarial Mathematics – Fundamentals
- RM 422: Short Term Actuarial Mathematics – Advanced Topics
- THEA 419: Musical Theatre: Business of the Business
- WFS 340: Statistics for Conservation of Wild Populations

Courses Dropped: Effective Spring 2023

- AES 485: Sustainable Energy System Integration
- EE 486: Sustainable Energy System Integration
- ENGR 185: Short Term/Short Duration Internship
- ENGR 185: Short Term/Short Duration Internship
- ERMD 89: Supervised Experience in College Teaching
- FDSC 223: Understanding Science Through Wine Beer and Bread
- FOR 49: Supervised Experience in College Teaching
- FRNSC 425: Chromatography and Spectroscopy in Forensic Science
- HDF Steer & Practice of Social Problems & How to Help
- HDF 485: Supporting Healthy Development: Understanding Systems, Successes, and Challenges
- HIST 194: Jerusalem: Sacred and Profane
- HM 101: Exploring the Global Hospitality Industry
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Courses Dropped: Effective Fall 2022

- AE 240: Programming and Data Science for Architectural Engineering
- AE 494H: Honors Thesis
- AFR 234: Environment, Climate Change and Resilience in Africa
- ANSC 480: Animal Growth and Development
- ANTH 430: Ancient Brews
- BBH 310H: Research Strategies for Studying Biobehavioral Health
- BIOL 462: History of Biology
- CMPSC 204: Introduction to Computational Sciences Programming
- CMPSC 205: Intermediate Computational Sciences Programming
- CMPSC 301: Event Driven Programming for Computational Sciences
- CMPSC 348: Data Science and Machine Learning for Computational Sciences
- DA 302W: Predictive Analytics
- DANCE 383: Performance Devising
rather than memorization, so students will develop analytical skills that understand such sources. This course will emphasize critical thinking approach difficult theoretical sources that have been assigned to them, class discussion, rather than upon tests. Thus, students will learn how to corporation. This class will depend largely upon written responses and etoy.com, for example, is an international and collaborative artist's group the internet) can critique commercial cooptation of global culture: put his "blackness" up for sale on ebay.com in August of 2001. Students as Keith Obadike, whose on-line performances include an attempt to will have an opportunity to engage with African American artists such of categories such as race and national identity. For example, students will be evaluated based on their performance on a combination of written assignments, they will be able to improve their skills in composition. Cross-Listed Courses: ART 476; Prerequisites: Enforced Prerequisite at Enrollment: ARTH 100 or ARTH 112 or ARTH 307 or ARTH 325 or ARTH 326 or ART 211 Changes Effective Summer 2022: • Prerequisites BBH 410: Developmental and Health Genetics (3 Credits) Old Listing Effective Through Spring 2022: Discussion of genetic influences on development and the interrelationships between genetics and health. Prerequisites: Enforced Prerequisite at Enrollment: (BIOL 133 or BIOL 222) and (STAT 200 or STAT 250) Changes Effective Summer 2022: • Abbreviated Title • Description • Prerequisites BBH 440: Principles of Epidemiology (3 Credits) (US) (IL) Old Listing Effective Through Spring 2022: Theory of epidemiology and significant case studies; potential applications to health care. BBH / HPA 440 Principles of Epidemiology (3) (US;IL)This course is designed to provide students with a basic understanding of the principles of Epidemiology and to familiarize students with the methods and applications of epidemiology to understanding the bases for heterogeneity of disease and health among populations. The goals of the course are: 1) recognize and use basic principles, concepts, terminology, and techniques in Epidemiology as applied to the study of infectious disease, chronic diseases, and other health-related problems; 2) examine and understand measures of risk and burden of illness on populations defined in terms of age, race, gender, class, time, and other relevant socio-cultural and demographic factors; 3) be able to interpret and critique epidemiological research reports on the identification of risk factors and casual factors for diseases in populations; 4) assess the health status and burden of diseases and health problems of populations at multiple levels of analysis for the purpose of planning health promotion activities and health care services; 5) have a basic understanding of the epidemiology tools for disease screening and other methods for primary and secondary prevention of disease and health problems; 6) examine the validity and applicability of various health interventions used to improve health status and the barriers for successful interventions; and 7) have a basic understanding of the epidemiology of the major causes of morbidity and mortality in the U.S. and for other selected regions and nations of the world. This is a required course in the Biobehavioral Health major and an elective course in the Health Policy and Administration major. The course is also appropriate for students intending to advance to post-baccalaureate graduate and professional programs in medicine, public health, health policy and planning, and other health-related careers. Students will be evaluated on their performance on a combination of written assignments, a term paper or project, and exams. Cross-Listed Courses: HPA 440
Prerequisites: Enforced Prerequisite at Enrollment: (BBH 101 or BIOL 110 or HPA 310) and (STAT 200 or STAT 250)

Changes Effective Summer 2022:

- Abbreviated Title
- Description
- Prerequisites

BIOL 220M: Honors Biology: Populations and Communities (4 Credits) (H) (WF) (BA)

Old Listing Effective Through Spring 2022:

Honors study of the major physical, chemical, and biological factors constituting environment and their dynamic interaction with organisms forming ecosystems. A study of the structures and functions of organismic interactions from simple populations to complex ecosystems. (BIOL 220W, BIOL 230W, and BIOL 240W each carry only 1 credit of "writing"); all three courses must be taken to meet the writing requirement.) BIOL 220M is an introductory course in ecology. It introduces students to the fundamental ecological principles, concepts, patterns, and processes regarding populations, communities, and ecosystems. This course provides students with a foundation of ecological science, as well demonstrating linkages between ecology, population genetics, and evolution. The course objectives are the same as those described in the original course proposal and are to provide students with a fundamental understanding of: 1) genetic processes within populations of living things, 2) evolutionary processes involved in speciation, 3) dynamic interactions of organisms within and among populations, especially pertaining to energy cycles, various biogeochemical cycles, predator-prey interactions, and the like, and 4) distribution patterns of living organisms and the need to conserve the resources of the earth.

Prerequisites: Enforced Prerequisite at Enrollment: BIOL 110H

Changes Effective Summer 2022:

- Prerequisites

BIOL 240M: Honors Biology: Function and Development of Organisms (4 Credits) (H) (WF)

Old Listing Effective Through Spring 2022:

Honors study of development and physiological processes at the organismic level. (BIOL 220W, BIOL 230W, and BIOL 240W each carry only 1 credit of "writing"); all three courses must be taken to meet the writing requirement.) This course provides an understanding of the major unifying principles as they apply to the study of the development and physiological mechanisms utilized by organisms from both animals and plants. In lecture a comparative approach will be taken in the examination of reproduction, development, and physiology primarily at the organismal level. In laboratory, experimental investigations of both animal and plant physiological mechanisms will reinforce the concepts covered in lecture. Through the lab, students are expected to become proficient in the interpretation and presentation of experimental results through written and oral reports. Taken together with the other core courses in the biology curriculum (BIOL 110, BIOL 220, BIOL 230W), BIOL 240M will help students to integrate concepts ranging from molecular and cellular events through principles governing entire populations and ecosystems. Further, BIOL 240M provides the foundation on which students further their study of animal physiology and development – two of the largest options in the biology majors curriculum. Through this class, and the other core course, students will develop skills integral to the General Education mission. Evaluation methods in the lecture part of the course include two to three "mid-term" exams and a comprehensive final exam. Evaluation methods in the lab portion of the course include in-class quizzes, one or more formal lab reports on experiments or data analysis conducted in lab sessions, and short write-ups of existing data sets or relevant ecological issues. The Honor's version of the course will differ in a number of ways from the parent BIOL 240W course. First, there are more opportunities to discuss current applications of the information. In addition, a unique project (either in lab and/or in lecture) will allow students to explore a specific area of the course in more detail (e.g., students choose a topic in the current literature and present a paper along with its significance to the class). Where appropriate, students will be exposed to current research in specific areas. The evaluation for the course will be modified from that of the parent course in accordance with the changes in assignments.

Prerequisites: Enforced Prerequisite at Enrollment: BIOL 110H and CHEM 110 or CHEM 110H

Changes Effective Summer 2022:

- Prerequisites

CAMS 440W: Studies in Classical and Ancient Mediterranean Archaeology (3-6 Credits: Maximum of 6 Credits) (WF) (BA)

Old Listing Effective Through Spring 2022:

Selected topics in the literary sources and material evidence for classical and ancient Mediterranean society. CAMS 440W/CAMS 440W Studies in Classical Archaeology (3-6)(BA) This course meets the Bachelor of Arts degree requirements. CAMS 440W is a writing-across-the-curriculum upper level archaeology course on various topics in the broad field of ancient Mediterranean archaeology. The course will vary depending on the specific topic, which could be a study of authors such as Herodotus and/or Pausanias in relation to the archaeological record; epigraphy; numismatics; food production and consumption (e.g., diet, subsistence requirements, public dining, symposia, Roman dining, furnishings) from the literary and archaeological record; various classes of ancient Mediterranean ceramics; or the archaeological study of a specific urban site, such as Troy, Babylon, Egyptian Thebes, the Athenian Agora, or Pompeii with an emphasis upon economic and social organization. In most semesters the topic will emphasize interdisciplinary themes, such as comparative state formation, or Egyptian-Greek-Persian relations, or the cultural development of a particular society, such as the Etruscan, that was strongly influenced by interaction with other Mediterranean cultures. Students will learn of major publications in the field of study, and how to conduct searches of the previous archaeological literature and the related literary record. As one requirement, students will complete a research paper on a topic related to the particular theme of the course that semester. The sequence of writing assignments is designed to allow students to develop a project, to search for related publications, to develop a proposal, and to revise drafts of the final paper. The course is also intended to provide students with a practical background in Classical and ancient Mediterranean archaeology that will help prepare them for fieldwork at ancient Mediterranean sites, for the interpretation of archaeological publications, and, as relevant, for utilizing the literary and/or epigraphic record for interpreting archaeological evidence. Those considering enrolling in this course may obtain information about the specific topic by asking the faculty member listed as teaching the course or the Undergraduate Officer in the Department of Classics and Ancient Mediterranean Studies.

Changes Effective Summer 2022:
CRIM 250W: Research Methods in Criminology (3 Credits)
Old Listing Effective Through Spring 2022:

The purpose of this writing-intensive course is to engage students in the social scientific research process used by criminologists to answer empirical research questions. It is the second course (after CRIM 249) that overviews theory and research in criminology. Students learn to use social science research methods through instructor-led demonstrations and applications of research methods, data analysis exercises, and critical reading of published research. Students apply their research knowledge and skills to an empirical research project completed in a sequence of steps producing written drafts that receive instructor feedback. After completion of this course, students will have acquired the following knowledge and skills: (1) The ability to generate a research question and effectively and efficiently search and review the relevant research literature. (2) A working knowledge of how to apply social science research methods and research designs to answer research questions. (3) The ability to strategically read published research articles to extract different types of information. (4) An understanding of the inductive and deductive aspects of the research process. (5) The ability to collect, analyze, and interpret quantitative and qualitative data. (6) The ability to design a quantitative research project to test hypotheses of interest to criminologists. (7) The ability to summarize and explain in writing the methods used and results derived from studies seeking answers to a common research question. (8) An understanding of social science research methods needed to be critical consumers of research and claims about crime, criminal behavior, and social response to them. (9) A certified knowledge about ethical issues in social science research.

Cross-Listed Courses: CRIMJ 250W
Prerequisites: CRIM 12
Changes Effective Summer 2022:
• Remove Cross-Listing
• Prerequisites

CRIM 490: Crime Policy (3 Credits)
Old Listing Effective Through Spring 2022:

This course focuses on criminal justice policy and the factors that influence policy development and implementation. CRIM 490 Crime Policy (3) This class will study crime and criminal justice in the context of law and the development and implementation of public policy. The course will focus on the politics of law and social control by exploring the construction of crime as a social problem, fundamental aspects of the policy development and implementation process, the legal interpretation of public policy, and the role of federal, state, and local governments in crime control. Students will be evaluated on essay exams and a term paper. This course is intended to be a capstone course for advanced undergraduates. The course will draw on the broad range of course work that students will have taken prior to taking this course to develop a course that takes what we know about crime, the law and the justice system and focus on public policy as it relates to these areas. The course may be used toward the six credits required at the 400 level under Additional Courses or as one of the courses under the Legal Studies Option.

Changes Effective Summer 2022:
• Prerequisites
• Cross-Listing

DS 310: Machine Learning for Data Analytics (3 Credits)
Old Listing Effective Through Spring 2022:

The course teaches students the principles of machine learning (and data mining) and their applications in the data sciences. DS 310 Machine Learning for Data Analytics (3) The course introduces the principles of machine learning (and data mining), representative machine learning algorithms and their applications to real-world problems. Topics to be covered include: principled approaches to clustering, classification, and function approximation from data, feature selection and dimensionality reduction, assessing the performance of alternative models, and relative strengths and weaknesses of alternative approaches. The course will include a laboratory component to provide students with hands-on experience with applications of the algorithms to problems from several domains. Prerequisites for the course include basic proficiency in programming, elementary probability theory and statistics, and discrete mathematics.

Prerequisites: Enforced Prerequisite at Enrollment: (CMPSC 121 or CMPSC 131) and STAT 318
Changes Effective Summer 2022:
• Prerequisites

DS 320: Data Integration (3 Credits)
Old Listing Effective Through Spring 2022:

Recommended Preparations: DS 310 Modern data-intensive applications (healthcare, security, public policy, science, commerce, crisis management, education, among others) increasingly call for integration of multiple types of data from disparate sources. This course introduces students to the principles and the practice of data integration, with particular emphasis on relational, knowledge-based, graph-based, and probabilistic methods. Carefully crafted assignments will help enhance the students’ mastery of both the theoretical underpinnings as well as practical aspects of data integration. The students will work in teams to solve representative data integration problems drawn from real-world applications. Upon completion of the course, students should be able design, implement, and evaluate data integration solutions to support data intensive applications.

Prerequisites: Enforced Prerequisite at Enrollment: DS 220 and STAT 318
Recommended Preparation: DS 310
Changes Effective Summer 2022:
• Prerequisites
analytics or discovery tasks. Building on data models covered in DS 220, this course will introduce programming models such as MapReduce, data flow supports for modern cluster computing environment, and programming models for large-scale clustering (either a large number of data samples or a large number of dimensions). Using these frameworks and languages, the students will learn to implement data aggregation algorithms, iterative algorithms, and algorithms for generating statistical information from massive and/or high-dimensional data. The realization of these algorithms will enable the students to develop data analytic models for massive datasets.

Cross-Listed Courses: CMPSC 410

Prerequisites: Enforced Prerequisite at Enrollment: (CMPSC 122 or CMPSC 132) and DS 220. Recommended Preparation: DS 310 or CMPSC 448

Changes Effective Summer 2022:

- Prerequisites

EARTH 111: Water: Science and Society (3 Credits) (US)
Old Listing Effective Through Spring 2022:

Investigation of water behavior and occurrence, its relevance to life, human activities, politics, and society. EARTH 111 Water: Science and Society (3) (GN;US) The Earth is often called 'The Blue Planet', a reference to the fact that over two-thirds of its surface is covered by water. Despite its apparent abundance, water is a valuable and limited resource; less than 2.5% of the water on the planet is fresh, and only one third of that is potable. And that's not all – the small fraction of Earth's water that is usable to humans is distributed very unevenly. As a result, conflicts over water occur from the local level, for example: pitting rancher against developer – to the global level, at which nations square off against one another in war and use water as a mechanism for imposing sanctions. The dire situation in some regions has spurred numerous research and technological endeavors, such as water desalinization, genetic engineering of crops, and major overhauls of agricultural practice. In this course, we will explore the relationships between water and human populations, with emphasis on water resources and quality in the Western U.S., and how these have shaped history and modern politics. We will focus first on developing the scientific underpinnings of water's unique properties, behavior, movement, occurrence, and quality. With this background, we will then discuss key issues relating to modern and historical conflicts, human impacts on the natural world, and human engineering accomplishments driven by our thirst for this valuable resource. We will discuss historical examples from the American West, specifically the development of water resources in Colorado and California. We will also explore modern and historical conflicts between stakeholders. Major themes will include political and economic conflicts over (1) water resources – for example, balancing agricultural and urban demands in the American west in the Denver and Los Angeles metropolitan areas, (2) water quality – for example, considering the impact of economically profitable human activities on water quality and transmission of disease, and (3) human impacts on natural processes, specifically connecting human activity with our cultural history of water use and exploration in the American West. Our approach is to include a substantial component of student-initiated learning. The course will include critical evaluation and discussion of assigned reading and films, a series of laboratory exercises and field trips to illustrate concepts and stimulate discussion, and a major research paper.

Changes Effective Summer 2022:
developed to cope with their effects is the third major topic of the course. The focus then shifts back to military affairs with a discussion of the role of oil in the battles of World War II. We then examine the social and cultural roots of the post-war dissolution of company ownership and the nationalization of oil reserves. Also in the policy arena, is a discussion of the policy response of western governments to a growing dependence upon low-cost oil from the Middle East, Africa, and South America. The analysis then focuses on the ideology and strategy behind the formation of the Organization of Petroleum Exporting Countries (OPEC) and the motivations and execution of their strategies to drive up oil prices during the 1970s and early 1980s. The last part of the course discusses the emergence of oil as a commodity traded in open commodity market exchanges, the development of reserves in deep water and in Africa, and the relationship between oil policy and the war on international terrorism. The course will be offered during the spring semester and will include a field trip to the Pennsylvania oil region. Evaluation and assessment of student performance will rely on grading on-line quizzes and assignments, team papers and presentations, and examinations.

Changes Effective Summer 2022:

- Abbreviated Title
- Description

ENGL 2: The Great Traditions in English Literature (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

Major works of fiction, drama, and poetry from the Middle Ages to the twentieth century expressing enduring issues and values. ENGL 2 The Great Traditions in English Literature (3) (GH) (BA) This course meets the Bachelor of Arts degree requirements. Students are expected to learn fundamental skills of close textual analysis in the context of established literary texts of English and Irish fiction, drama, and poetry from the Middle Ages to the twentieth century that address large questions of ethical and social value. They are also expected to learn to talk and write clearly about the issues and ideas generated by the texts that are directed to read. ENGL 2 will require all students to confront the major interpretive problems found in their assigned readings and to participate actively in the various forms of critical thinking required to comprehend and resolve those problems. ENGL 2 will require all students to participate in an assessment of the social behavior and other values, both communal and scholarly, relevant to the texts being read and discussed in the course. This course fulfills a General Education humanities requirement or a Bachelor of Arts humanities requirement.

Changes Effective Summer 2022:

- Add IL Designation
- Description

ENGL 2H: The Great Traditions in English Literature Honors (3 Credits) (H) (BA)
Old Listing Effective Through Spring 2022:

ENGL 2 is a lecture/discussion course that addresses major works of English and Irish fiction, drama, and poetry from the Middle Ages to the twentieth century. The course is designed to give students an introductory appreciation of a wide range of established works of literature written in English. The goal of this course is not only to give students a sense of literary history, but also to encourage students to question how such texts express larger concerns about issues and values central to human experience. English 2 is designed to prepare students for additional college-level literature courses and to help students learn the fundamental skills of close textual analysis vital to all humanistic study. This Honors section is enriched by more rigorous requirements (longer papers, and a research component to each paper where the student is required to cite and engage critical sources and conversations). Participation requirements are also enhanced, making for a richer honors experience.

Changes Effective Summer 2022:

- Add IL Designation
- Description

ENGL 104: The Bible as Literature (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

Study of the English Bible as a literary and cultural document. ENGL 104 The Bible as Literature (3) (GH) (BA) This course meets the Bachelor of Arts degree requirements. The purpose of this course is to acquaint students with the literature of the Bible. Throughout this course, students will examine the language, thought, images, and structures of the book that has arguably proved the central text of Western literature. Students will also actively explore the ways in which the Bible has shaped the literature of English-speaking cultures. Students will read substantial portions of the Old and New Testaments, learning to read critically and to interpret the Bible as they would any other literary text. They will also learn about the historical construction of the Bible and contemplate the competing versions of existing Biblical texts. Students will be asked to complete at least three writing assignments.

Cross-Listed Courses: JST 104

Changes Effective Summer 2022:

- Add IL Designation
- Description

ENGL 129: Shakespeare (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

ENGL 129 constitutes a broad introduction to Shakespeare's dramatic works from a variety of thematic, historical, formal, and/or generic vantages. Students will practice close reading Shakespeare's language while also learning how his plays reflect upon the social and theatrical conventions of the historical period in which they were written and performed. Approaches taken to the plays will vary from class to class, but may include a chronological introduction to the development of Shakespeare's plays, a consideration of a principal Shakespearean theme or themes through a number of plays from across Shakespeare's career, a consideration of Shakespeare's protagonists through a number of plays from across Shakespeare's career, or a consideration of a number of Shakespeare's plays in historical context. The class will attend to issues such as gender, social class, politics, sexuality, and race, and students will learn how Renaissance perspectives on these issues differed from their own. In order to analyze how Shakespeare's plays continue to be adapted and transformed, the class may also involve the study of modern stage and film performances of Shakespeare. Time allotted for the discussion of each play will vary, but students should expect to read, on average, one play every 1-2 weeks. This class will prepare students for advanced courses in early modern literatures as well as other academic courses that engage in the verbal and written analysis of complex written texts.

Changes Effective Summer 2022:
ENGL 129H: Shakespeare (3 Credits) (H) (BA)
Old Listing Effective Through Spring 2022:

ENGL 129H constitutes a broad introduction to Shakespeare's dramatic works from a variety of thematic, historical, formal, and/or generic vantages. Students will practice close reading Shakespeare's language while also learning how his plays reflect upon the social and theatrical conventions of the historical period in which they were written and performed. Approaches taken to the plays will vary from class to class, but may include a chronological introduction to the development of Shakespeare's plays, a consideration of a principal Shakespearean theme or themes through a number of plays from across Shakespeare's career, a consideration of Shakespeare's protagonists through a number of plays from across Shakespeare's career, or a consideration of a number of Shakespeare's plays in historical context. The class will attend to issues such as gender, social class, politics, sexuality, and race, and students will learn how Renaissance perspectives on these issues differed from their own. In order to analyze how Shakespeare's plays continue to be adapted and transformed, the class may also involve the study of modern stage and film performances of Shakespeare. Time allotted for the discussion of each play will vary, but students should expect to read, on average, one play every 1-2 weeks. This class will prepare students for advanced courses in early modern literatures as well as other academic courses that engage in the verbal and written analysis of complex written texts.

Changes Effective Summer 2022:

• Add IL Designation
• Description

ENGL 182: Literature and Empire (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

Literature written in English from countries that were once part of European empires, e.g., India, Canada, South Africa, and others.

Changes Effective Summer 2022:

• Add IL Designation
• Description

ENGL 192: The Literature of Fantasy (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

Perhaps more than any other genre of speculative fiction, fantasy is richly varied. This course examines the development of literary traditions in fantasy literature from their earliest origins in mythology and folklore, through the historical development of classic fantasy works, into the books, movies and other fictions of the modern day. The course also explores different critical and theoretical approaches to the student of fantasy literature and related artistic traditions, as surrealism and magical realism.

Changes Effective Summer 2022:

• Add IL Designation
• Description

ENGL 202A: Effective Writing: Writing in the Social Sciences (3 Credits) (GWS)
Old Listing Effective Through Spring 2022:

ENGL 202A introduces students to the types of writing that social scientists typically do in the workplace, including research proposals, proper citation practices, literature reviews, and research reports. In discussing writing and writing activities, this class will focus on some of the more common forms of social science research – among them, experiments, interviews, observations, and surveys. Students will learn to formulate ideas and create coherent pieces of writing from the research they have conducted and read about. In short, this course will introduce students to a variety of writing and research strategies from which they can begin to develop their own identity as a social scientist. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.)

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T) and 4th Semester

Changes Effective Summer 2022:

• Prerequisites

ENGL 202B: Effective Writing: Writing in the Humanities (3 Credits) (GWS)
Old Listing Effective Through Spring 2022:

Instruction in writing persuasive arguments about significant issues in the humanities. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.) ENGL 202B Advanced Writing in the Humanities encourages students to develop professional writing skills most likely required in humanities careers. These writing modes include professional materials and then a wider range of writing projects that may include a professional narrative, analysis of a controversy, argumentation, persuasion, and synthesis. Students may analyze a wide-variety of texts – both verbal, digital, and visual – to learn skillful argumentation with advanced writing techniques.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T) and 4th Semester

Changes Effective Summer 2022:

• Prerequisites

ENGL 202C: Effective Writing: Technical Writing (3 Credits) (GWS)
Old Listing Effective Through Spring 2022:

Writing for students in scientific and technical disciplines. (A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.) ENGL 202C is an advanced writing course designed to help students in science and engineering develop the writing strategies that they will need to communicate successfully on the job and to help them understand why those strategies are appropriate and effective. A key emphasis will be on the rhetorical principles of effective communication, including context analysis and defining clear, actionable purposes. Students will gain experience with a wide range of technical writing genres, including reports, descriptions, definitions, procedures, job application documents, emails, memos, and web applications. Students will also learn about the importance of document and graphic design, including how best to design communications to maximize their potential for success.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T) and 4th Semester
Changes Effective Summer 2022:

• Prerequisites

ENGL 223N: Shakespeare: Page, Stage, and Screen (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

This course will explore the relation between literary analysis and both film and theatrical performance by asking students to approach a limited set of plays from multiple perspectives, using texts, film, and theatrical performance to integrate these methodologies. Students will work closely with Shakespearean texts, practice textual and poetic analysis, and will also examine critically different forms of performance: film and live theatre. In particular, the course will explore the interrelation of these elements, revealing a deeper imaginative understanding of works that continue to influence English-speaking literature and culture.

Changes Effective Summer 2022:

• Add IL Designation
• Abbreviated Title
• Description

ENGL 250: Peer Tutoring in Writing (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

Introduction to theories and skills of successful peer tutoring in writing. Provides tutoring experience in a writing center.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Summer 2022:

• Prerequisites

ENGL 310H: Honors Thesis in English (3 Credits) (H) (BA)
Old Listing Effective Through Spring 2022:

Research paper or creative project on a topic approved by the Departmental Honors Committee.

Changes Effective Summer 2022:

• Description
• Prerequisites

ENGL 312: Globality and Literature (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

Examines relationships between literature and culture, through the study of major texts in English by writers of various cultures.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Summer 2022:

• Add IL Designation
• Description

ENGL 400: Authors, Texts, Contexts (3 Credits: Maximum of 6 Credits) (BA)
Old Listing Effective Through Spring 2022:

Styles, cultural milieus, critical perspectives toward particular English-language authors and/or movements they represent, and the idea of authorship. (Section subtitles may appear in the Schedule of Courses.)

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Summer 2022:

• Prerequisites

ENGL 401: Studies in Genre (3 Credits: Maximum of 6 Credits) (BA)
Old Listing Effective Through Spring 2022:

English-language texts exemplifying particular genres, with attention to critical theories, historical development, rhetorical strategies, and social, cultural, and aesthetic values. (Section subtitles may appear in the Schedule of Courses.)

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Summer 2022:

• Prerequisites

ENGL 401W: Creative Writing Theory (3 Credits) (WF) (BA)
Old Listing Effective Through Spring 2022:

Theories of art and creativity which inform the making of literary works.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Summer 2022:

• Prerequisites

ENGL 402: Literature and Society (3 Credits: Maximum of 6 Credits) (BA)
Old Listing Effective Through Spring 2022:

Texts confronting social, political, technological, or other issues in the English-speaking world. (Section subtitles may appear in the Schedule of Courses.) ENGL 402 Literature and Society (3)(BA) This course meets the Bachelor of Arts degree requirements. One variation will focus on Literature and Censorship by first considering general arguments for and against censorship and then by examining texts by writers who sought publication in their own country but whose books were censored or banned. The course will consider such questions as, Are there ever legitimate grounds for censorship? How do standards of censorship differ between countries? What is the relation between censorship on political and on moral grounds? What does artistic merit have to do with concern about moral or political subversion? Works from England, South Africa and the United States will be read and discussed, and where available, excerpts from trial transcripts will be read in order to examine arguments for and against publication. Readings will include works by Milton, D. H. Lawrence, Alan Paton, Nadine Gordimer, Athol Fugard, Eugene O'Neill, Henry Miller, and Alan Ginsberg. Another variation will focus on war and gender in 20th century American literature by examining the ways male and female authors write about war. Texts will vary from battlefield experiences to repercussions of war to the symbolic implications of war. Questions will be raised about literary authority. Does one need to be
combatant to write about war? If not, how does one find the authority to speak, particularly as a woman? How does race and/or ethnicity complicate one's perceptions of American participation in war? Readings will include works by Ernest Hemingway, William Faulkner, Joseph Heller, Cynthia Ozick, Leslie Marmon Silko, Norman Mailer, Bobbie Mason, Tim O’Brien, and Toni Morrison. Another variation will focus specifically on the writings which emerged from the postwar African-American struggle for civil rights. The course will include not only fiction and poetry but also those speeches, sermons, editorials, and other forms of discourse to have emerged from the era. The emphasis will be both traditional literary concerns as well as on the various rhetorical strategies involved in each work. Ideally, the course would make visible to students the difficulties attendant upon any attempt to separate the concerns of rhetoric and persuasion too firmly from the concerns of literature. The course could conclude with a look at some of the various biographies, autobiographies, and histories written over the last twenty-five years, which attempt to shape our national memory. Other variations include literature as a response to Newtonian science or to Darwinism or to the American Depression or to postwar technology or to new dystopias or to AIDS or, as in the sample outline, the Civil Rights movement.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Summer 2022:

• Prerequisites

**ENGL 403: Literature and Culture (3 Credits: Maximum of 6 Credits) (BA)**

Old Listing Effective Through Spring 2022:

Historical, theoretical, and practical issues within cultural studies in relation to English-speaking texts. (Section subtitles may appear in the Schedule of Courses.) ENGL 403 Literature and Cultural Studies (3)(BA) This course meets the Bachelor of Arts degree requirements. Topics covered in this course will vary from semester to semester, but a broad framework will be to introduce students to literary and other texts read in relation to cultural studies. Individual instructors may take up different historical periods, while other versions may suggest ways cultural studies draws on different theoretical discourses such as rhetoric, deconstruction, feminism, or the New Historicism for its problems. All Reading Culture courses should serve as an introduction to cultural studies, moving from theoretical to practical readings of literature and culture. In any case, a common goal would involve examining cultural studies as constituted by plural theories and ends.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Summer 2022:

• Prerequisites

**ENGL 404: Mapping Identity, Difference, and Place (3 Credits: Maximum of 6 Credits) (BA)**

Old Listing Effective Through Spring 2022:

Ethnicity, gender, class, race with reference to theoretical inquiry into identity, difference, and place in English-language literatures. (Section subtitles may appear in the Schedule of Courses.)

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Summer 2022:

• Prerequisites

**ENGL 487W: Senior Seminar (3 Credits) (WF) (BA)**

Old Listing Effective Through Spring 2022:

Issues, themes, periods, critical theories, etc., that invite students to use prior English studies, limited to seniors majoring in English.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Summer 2022:

• Prerequisites

**ENGL 491: The Capstone Course in Professional Writing (3 Credits) (BA)**

Old Listing Effective Through Spring 2022:

This culminating course for Professional Writing majors concentrates on reflective analyses, design, and presentation of documents in the development of professional portfolios.

Prerequisites: Enforced Prerequisite at Enrollment: [ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)] and (ENGL 202A or ENGL 202B or ENGL 202C or ENGL 202D) and 7th Semester standing or higher AND enrollment in the PWRIT_BA major.

Changes Effective Summer 2022:

• Prerequisites

**ERM 440: Chemistry of the Environment: Air, Water, and Soil (3 Credits)**

Old Listing Effective Through Spring 2022:

A global perspective of the chemical principles, composition and processes that operate within and between air, water, and soil environments. E R M 440 Chemistry of the Environment: Air, Water, and Soil (3) This course provides a global perspective of the chemical principles, composition and processes that operate within and between air, water, and soil environments. The course is designed to develop knowledge of chemistry fundamentals as applied to the principles and concepts used in environmental chemistry. Upon completion of this course, students will have an understanding of soil, water, and air chemical principles and their applications. Specifically designed for juniors and senior undergraduates, the course will link theoretical chemistry concepts to real-world environmental problems. Students will be evaluated on examinations, homework, and class participation.

Prerequisites: CHEM 110 , CHEM 111 , CHEM 112 ; CHEM 202 or CHEM 210

Changes Effective Summer 2022:

• Title
• Abbreviated Title
• Description
HCDD 264: Design Practice in Human-Centered Design and Development (3 Credits)
Old Listing Effective Through Spring 2022:

This course focuses on concepts, methods, techniques, and tools for designing effective technology-enabled experiences. The course will provide students with all the elements for a toolbox they can use to design and create both prototypes and working applications, and some analytic methods they can use to perform basic evaluations. The course will emphasize iterative design and the benefits of employing a cycle of analyze – design – build – evaluate in close cooperation with prospective technology users and other product stakeholders. In addition to more practice-oriented skills and knowledge, the course will provide students with an appreciation for some persistent design challenges including managing design trade-offs, ensuring universal and international access, working with others on co-design, and receiving and delivering design critiques. Students who successfully complete the course will leave equipped to engage with practicing design teams in industry, government, and academia.

Prerequisites: Enforced Prerequisite at Enrollment: IST 242 and (HCDD 113 or HCDD 113S)

Changes Effective Summer 2022:

• Prerequisites

HCDD 340: Human-Centered Design for Mobile Computing (3 Credits)
Old Listing Effective Through Spring 2022:

The course will provide students with an appreciation for the importance of mobile computing in modern life. It will also provide an introduction to the technical aspects of mobile computing including input modalities, sensors and sensing, wearable and smart home devices, and virtual/augmented reality. It will provide an introduction to established design concepts as well as explore emerging ideas and new concepts in the domains of mobile computing, and explore some of the most important domains where mobile computing is having a significant impact including health and wellness and computing in the developing world. The latter part of the course will include an analysis, design, and development project for students to work on individually or in groups.

Prerequisites: Enforced Prerequisite at Enrollment: HCDD 264 and IST 311

Changes Effective Summer 2022:

• Prerequisites

HCDD 364W: Methods for Studying Users (3 Credits) (WF)
Old Listing Effective Through Spring 2022:

This course focuses on concepts, methods, techniques, and tools for studying users and evaluating technology in the context of use. It will provide students with methods and tools they can use to incorporate knowledge of users and their settings into the design and evaluation of interactive systems. These methods will include both qualitative and quantitative techniques, as well as how to combine and sequence multiple techniques to gain a more holistic understanding. Students will learn to select and use appropriate data gathering and analysis methods and how to assemble these into a coherent user research design. The course also provides an overview of the most important statistical analysis methods employed in user research. This is a hands-on, practical course designed for HCDD undergraduate students, and others as an elective.

Prerequisites: Enforced Prerequisite at Enrollment: HCDD 264 and IST 311

Changes Effective Summer 2022:

• Prerequisites

HCDD 440: Human-Centered Design and Development Capstone Course (3 Credits)
Old Listing Effective Through Spring 2022:

The Human-Centered Design and Development Capstone course develops the research orientation and creative problem solving necessary for successful careers. The capstone develops these skills in the context of a semester-long project, the solution to which requires integration of knowledge, skills and analytic techniques taught in the core curriculum. The capstone will also give students a real-world experience in which they will need to work in teams and be coached on ways to translate analytic outcomes into meaningful and actionable information for decision makers. The course is intended for seniors who have successfully completed the core courses. The capstone projects will integrate knowledge gained in technical subjects such as usability engineering, software construction and engineering, and mobile computing as well as general information technology topics such as machine learning, data mining, data integration and visualization, and privacy and security. Students will also hone their presentation and technical writing skills, generating effective reports that not only explain their analytic processes, assumptions underlying the processes and outcomes, but also communicate the limitations of their approach and potential alternate strategies.

Prerequisites: Enforced Prerequisite at Enrollment: (IST 261 or IST 361) and HCDD 364W. Recommended Preparations: HCDD 340

Changes Effective Summer 2022:

• Prerequisites

INART 215: The Craft of Singing (3 Credits)
Old Listing Effective Through Spring 2022:

Vocal and breathing anatomy and technique, vocal health and classifications, posture, and beginning acting/movement techniques for singers. INART 215 The Craft of Singing (3) (GA) Vocal and breathing anatomy and technique, vocal health and classifications, posture, and beginning acting/movement techniques for singers. Anatomy of the larynx and respiratory system are studied and strengthened through in-class work on vocal and breathing exercises. Focus will be on good tone production and resonance. Aspects of vocal health, voice classification, and basic differences between Classical and Musical Theatre vocal styles are introduced. Techniques that enhance and develop acting and movement choices are also studied through individual and group exercises and through the performance of songs.

Changes Effective Summer 2022:

• Add BA Designation
• Change to MUSIC 215
• Description

IST 256: Programming for the Web (3 Credits)
Old Listing Effective Through Spring 2022:
IST 256 will provide students with the knowledge and skills to create both basic and more dynamic web-based content pages and applications. The course will focus on acquiring competencies in core web development languages including HTML, CSS, and JavaScript, then move on to more advanced topics such as information architecture, incorporation of multimedia, and the use of application programming interfaces (APIs) and application development frameworks for the web. The course will follow an active learning pedagogy and incorporate a substantial project component. The first part of the course consists of introduction of web programming concepts, techniques, and tools. Students will demonstrate understanding of the course content by building web pages via individual and group activities. The latter half of the course will involve more in-depth project work both as individuals and in groups.

Prerequisites: Enforced Prerequisite at Enrollment: IST 250 or IST 242

Changes Effective Summer 2022:

• Prerequisites

LER 83S: First-Year Seminar in Labor and Human Resources (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

LER 83S meets the Bachelor of Arts degree requirements. This course provides a general introduction to the field of labor, employment relations, and human resources, as well as a more in-depth examination of an issue or topic related to the field and it does so in a small class environment. It also introduces first-year students to the University as an academic community, to their responsibilities as a member of that community, and to the wide range of the opportunities and resources available to them. The course fulfills both a first-year seminar and a general education or Bachelor of Arts social/behavioral science requirement. Class sessions stress discussion of assigned readings, debates, and/or talks by guest lecturers/speakers.

Changes Effective Summer 2022:

• Change Abbreviation to LHR

• Description

LER 165N: Work and Literature (3 Credits)
Old Listing Effective Through Spring 2022:

If you get a job out of college, work eight hours a day, fifty weeks a year, and retire at age 65, at that point you have will spent roughly one third of your adult, waking life at work. And that is just paid work. Add in housework, childcare, and other forms of unpaid labor and the share of your waking hours devoted to work creeps closer to one half. And those calculations may actually underestimate the influence work has over your life. What you do will determine where you live, how you live, and, perhaps, whether you believe you have ultimately done something meaningful with your life. With work playing such an outsized role in a life, you may as well understand it as best you can. Hence this class. In it, we approach the question of work from the perspective of two disciplines: labor and employment relations and literature. The field of labor and employment relations asks about the social and economic forces-markets, compensation, globalization, immigration, etc.-that shape work. By contrast, the discipline of literature takes a more subjective approach to the question of work. Very broadly speaking, it shows how the forces that shape work play out in individual lives. In short, it shows how individuals feel about the work they do or, in the case of the unemployed, they do not do. Together, the two disciplines provide a global and personal perspective on one of the most important parts of our lives. Students registering for the course will read representative selections from both domains, engage in course discussions, take exams, and write essays as they explore the variety of ways both labor and employment relations and Literature can prepare them for their work lives and help them understand the place of work in culture and society.

Changes Effective Summer 2022:

• Change Abbreviation to LHR

LER 201: Employment Relationship: Law and Policy (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

Most Americans spend a third of their adult lives at work. This course examines the legal rights and rights and obligations of employers and employees in US workplaces. No previous course in law is necessary. The course begins with an overview of general legal concepts necessary to an understanding of the US legal system. That sets the stage for an examination of the employment contract, a cornerstone of employment law. The main body of the course examines such topics as sexual harassment, drug testing, wage and hour regulation, immigration, health care, pregnancy, family leave, workers’ compensation, employee privacy, and unionization. This introduces students to landmark federal and state employment statutes, regulations, and cases. As students learn about workplace rights and obligations, they discuss the public policy issues underlying most debates. Throughout, students are encouraged to argue policy questions from the different perspectives of employers, employees, and the public. Being both “employee-centric” and “employer-centric,” the course is designed for the generalist as well as the major in the field. Thus, its content helps to prepare literally any future employee with vital liberal arts and career-related knowledge, while at the same time providing a foundation for students who choose to specialize in human resources or labor relations.

Changes Effective Summer 2022:

• Change Abbreviation to LHR

• Description

LER 202: Understanding Employee Behavior (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

The course will be offered at an introductory level. It is designed to encourage students to explore individual and group behavior at work. The ability to describe, explain and analyze concepts in this course is critical to appreciating the dynamics that determine organizational outcomes. In this context, students will learn basic tools that will assist them in developing management, supervisory and leadership skills. Because the concepts from this course are the foundation of human resource management and employee relations, it is essential to master them in order to be an effective human resource management or employee relations professional. The conceptual learning in the course will include individual differences, diversity, attitudes, fairness perceptions, motivation, decision making, leadership, teams, negotiation, organizational culture and its role in the external context.

Changes Effective Summer 2022:

• Change Abbreviation to LHR

LER 304: Labor and Employment Relations Fundamentals (3 Credits)
Old Listing Effective Through Spring 2022:
The course surveys the main elements of modern labor and employment relations systems in the U.S. and beyond. The course encourages students to use a framework for evaluating workplace outcomes according to three yardsticks: efficiency, equity; and voice. Focusing primarily on employee voice, the course introduces students to a variety of mechanisms that bring democracy, worker engagement, and worker influence to the workplace. Among these mechanisms are U.S.-styled collective bargaining, non-union systems of worker involvement, European works councils, and a new variety of "alt-labor" initiatives from around the world. In its single largest unit, the course focuses on U.S. workplaces, beginning with the historical and legal foundations of the modern U.S. labor relation system. This includes units examining union organizing campaigns, collective bargaining, and dispute resolution systems. Concluding weeks of the course look at issues surrounding the push for workplace flexibility, a comparative labor relations look at other country practices (include European works councils), emerging issues in global supply chains, "alt-labor" institutions and practices, the role of gender, race, and diversity initiatives at work, and the impact of automation and artificial intelligence on the future of work.

Prerequisites: LER 100

Changes Effective Summer 2022:

- Change Abbreviation to LHR
- Prerequisites

LER 305: Human Resources Fundamentals (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

This course will provide students with an opportunity to understand and apply important concepts concerning human resources in the workplace. Students will learn to think of the issues in the class from both the employees' and organizations' perspectives. The course begins with a description and analysis of the role human resource managers play in supporting employees' personal needs as well as an organization's strategic objectives. The discussion traces the changes in that role historically, as well as the contemporary understanding of HR's part in helping stakeholders succeed. Against this backdrop, students will study three critical variables affecting HR's involvement in management: the individual; the organization; and, the law. Each of these foci illustrates variables with which HR managers must contend. The course presents these variables through a variety of lenses: law, psychology, sociology, history and literature. Students will also spend considerable time studying the various functions HR plays in recruiting, selecting, training, evaluation, compensation, labor relations and safety. In these portions of the class, students will learn to understand the functions not only from the organization's, but also from the employees' perspective. The discussion of functional areas will end with application of the concepts studied to the global business environment in which HR increasingly operates. Throughout students will not only learn the mechanics of, for example, the selection process, but how processes support an organization's and individual's pursuit of their unique purposes. Consistent with the liberal arts environment in which LER students operate, this course introduces students to a variety of mechanisms that bring democracy, worker engagement, and worker influence to the workplace. Among these mechanisms are U.S.-styled collective bargaining, non-union systems of worker involvement, European works councils, and a new variety of "alt-labor" initiatives from around the world. In its single largest unit, the course focuses on U.S. workplaces, beginning with the historical and legal foundations of the modern U.S. labor relation system. This includes units examining union organizing campaigns, collective bargaining, and dispute resolution systems. Concluding weeks of the course look at issues surrounding the push for workplace flexibility, a comparative labor relations look at other country practices (include European works councils), emerging issues in global supply chains, "alt-labor" institutions and practices, the role of gender, race, and diversity initiatives at work, and the impact of automation and artificial intelligence on the future of work.

Prerequisites: LER 100

Changes Effective Summer 2022:

- Change Abbreviation to LHR
- Prerequisites

LER 312 Employment Relations to Research Methods in Labor and Employment Relations (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

The objective of this course is to enhance students' abilities to use a range of methodologies to evaluate and conduct research in the field of employment relations and human resource management. LER 312 Employment Relations to Research Methods in Labor and Employment Relations (3)(BA) This course meets the Bachelor of Arts degree requirements. The objective of this course is to enhance students' abilities to use a range of methodologies to evaluate and conduct research in the field of employment relations and human resource management. It covers core concepts such as the scientific method, literature search, the logic of hypothesis formulation and testing, measurement, sampling and data collection methods, and basic statistical analysis. To accomplish these objectives, the course utilizes readings, lectures, class discussions, exercises and assignments, student presentations, and examinations.

Changes Effective Summer 2022:

- Change Abbreviation to LHR
- Description

LER 400 Comparative Employment Relations Systems (3 Credits) (IL) (BA)
Old Listing Effective Through Spring 2022:

Analysis of structure and elements of employment relations systems in developed and developing areas. LER 400 LER 400 Comparative Employment Relations Systems (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course explores contemporary topics in employment relations in the world. The course examines seven examples of employment relations systems, each carefully chosen to illustrate important variations in employment relations practices. It also provides an overview of economic globalization and its impact on employment relations. Topics include global sweatshops, child labor, the diffusion of human resource practices, and corporate social responsibility. The first country case is Germany, which provides an example of a country with strong national unions and a highly developed system of works councils. The Swedish case exemplifies a long-tradition of centralized bargaining and tripartite relations that is now in transition. The third case, Japan, illustrates a long-tradition of centralized bargaining and tripartite relations that is now in transition. The second half of the course looks at broader themes related to the topic of globalization. Sweatshops in Mexico and child labor in India examined alongside the diffusion of high-end human resource practices in Brazil.
In this section, student will also study inter-governmental institutions such as the World Trade Organization, and the International Monetary Fund. The final unit of this section examines the topic of Corporate Social Responsibility (CSR), recent attempts by corporations -at times in coordination with labor unions—to establish basic sets of rules or standards for their employees wherever units of the corporation might be located in the world today.

Prerequisites: 3 credits in Labor and Employment Relations

Changes Effective Summer 2022:

- Change Abbreviation to LHR
- Description
- Prerequisites

LER 401: The Law of Labor-Management Relations (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

Development of Anglo-American law regulating collective bargaining, with emphasis on American labor-management relations under Wagner, Taft-Hartley, and other acts. LER 401 The Law of Labor – Management Relations (3)(BA) This course meets the Bachelor of Arts degree requirements. This course will examine the evolution of labor law in the United States. The N.L.R.A. itself, and the decisions of the National Labor Relations Board (N.L.R.B) and the courts, will be examined in order to gain an understanding of the current legal framework underpinning our system of labor-management relations. Major issues to be examined include the rights of employees to union representation; the formation of bargaining units; the conduct of organizing campaigns and elections; the duty to bargain; strikes, striker's rights, and lockouts; picketing, boycotts, and related activity; the enforcement of collective bargaining agreements and the duty to arbitrate; union members' rights and responsibilities, the duty of fair representation; and federal-state relationships in labor relations. Also covered in the course will be the legal framework for public sector labor-management relations, with specific attention paid to Pennsylvania Acts 111 and 195. The course will be taught from a liberal arts perspective, meaning that societal factors influencing the law—history, politics, and economics—will be emphasized. Student performance will be evaluated by means of tests, short papers, and such reports as may be required. This course is complementary to others in Labor Law, including LER 434, Collective Bargaining and LER 435 Labor Relations in the Public Sector. The course requires no special facilities or equipment; however, students enrolled are expected to have computer skills sufficient for communication and word processing purposes.

Prerequisites: 3 credits in Labor and Employment Relations or Political Science

Changes Effective Summer 2022:

- Change Abbreviation to LHR
- Description
- Prerequisites

LER 403: International Human Resource Studies (3 Credits) (IL) (BA)
Old Listing Effective Through Spring 2022:

Course exploring human resource management from an international perspective. LER 403 International Human Resource Studies (3) (IL)(BA) This course meets the Bachelor of Arts degree requirements. This course on International Human Resource Management expands beyond the traditional disciplines of HRM through a broader consideration of the impact of national contexts on these areas of organizational practice. The first question addressed is whether ‘HRM’ actually means the same thing in different countries, especially given that the term ‘HRM’ was developed from US management practice and scholars. This opens the discussion as to how institutions and culture at the national level help to shape management practice. As organizations become increasingly global, these issues of national culture and institutions can often stand in the way of a seamless progression of HRM across national boundaries. From a national culture perspective, the course compares how people in different countries see themselves and others around them, and how expectations, values and beliefs can differ in the workplace. This understanding is drawn from frameworks of national culture which describe the culture’s multiple dimensions. This enables students to identify why and how it may be different working with colleagues from other cultures, as well as understanding the implications this can have for designing appropriate HRM practices. From a national institutions perspective, the course compares how institutions such as legislation, state intervention, trade union influence, education systems, and the respective power of shareholders versus stakeholders can impact on patterns of HRM and employee relations practices in different countries. For example, comparisons are made between economies with very high levels of employment regulation, explaining local employee rights and benefits, and those in which firms have more autonomy to choose how to manage their employees. From a strategic perspective, the course looks at how multinational enterprises are managing this cultural and institutional complexity, making strategic choices in international HRM to ensure they achieve the ultimate balancing act of thinking global but acting local. It considers different strategies firms might take (from complete standardization of HRM to complete localization) and how this then translates into different roles and activities for the HRM function. This section also explores how these firms manage their international staff (expatriates), as well as finally exploring ethical issues around outsourcing activities to lower-cost countries, and the impact of a more globalized workforce on diversity and work-life balance issues.

Prerequisites: LER 100

Changes Effective Summer 2022:

- Change Abbreviation to LHR
- Description
- Prerequisites

LER 409: Leadership Development: A Life-Long Learning Perspective (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

The course examines the continuing influence of social and environmental factors in shaping leadership and leadership development. LER (OLEAD) 409 Leadership Development: A Life-Long Learning Perspective (3)(BA) This course meets the Bachelor of Arts degree requirements. Current social conditions, such as financial crises, ineffective solutions to local, national, and international problems and corrupt leaders, call for more effective and ethical leadership on a broad scale. The positive and moral transformation of social institutions requires active participation and leadership of more ineffective solutions to local, national, and international problems and corrupt leaders, call for more effective and ethical leadership on a broad scale. The positive and moral transformation of social institutions requires active participation and leadership of more effective and ethical leaders. This course will discuss effective and ethical leadership development from a life span developmental perspective. More specifically, it will focus on how an individual develops his/her leadership skills, potential, and capacity in his/her childhood, school, social organizations, colleges, and work organizations. The primary purpose of this course is to help students understand how family, educational, and other environmental factors have helped and/
or will help them develop their transformational leadership potential and leadership effectiveness, in addition to gaining a better understanding of their strengths and weaknesses in respect to personality, individual difference, motivation, values, emotions, self-awareness, and identity. The fundamental objectives of this course are to help students 1) increase self-awareness; 2) to help students to know more about their sense of self, including self-identity, self-awareness, self-efficacy, and other types of self concepts; 3) to understand the effect of life span influences in an individual’s leadership development.

Prerequisites: Prerequisites: OLEAD 100 or 6TH Semester Standing

Changes Effective Summer 2022:

- Change Abbreviation to LHR
- Description
- Prerequisites

LER 426: Staffing and Training Strategies in Organizations (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

This course focuses on the theory and practice of human resource staffing and training in organizations. It provides the conceptual framework for understanding the staffing and training function as a factor of production and service. For this we will discuss policies and practices designed to attract, retain, and motivate employees. It explains how staffing and training can be used as a competitive weapon. For this we discuss how human resource policies and practices can be targeted towards achieving business objectives. This should inspire you to think of the connection between employee effectiveness and profitability. The course also provides the government regulations that impact staffing and training practices. The course uses lectures, group discussion, and in-class exercises to impart these concepts.

Prerequisites: LER 100

Changes Effective Summer 2022:

- Change Abbreviation to LHR
- Title
- Abbreviated Title
- Prerequisites

LER 427: Organizational Context for Human Resource Management and Employment Relations Professionals (3 Credits)
Old Listing Effective Through Spring 2022:

This course examines human resource management (HRM) and employment relations (ER) from a strategic perspective embedded in a complex and evolving organizational system. To be effective, students must understand how different organizational strategies interface with the entire set of HR/ER practices put in place. This approach also requires an ability to connect business functions, governance, organizational metrics and financial considerations with investments in the broader HR/ER system. The goal of this course is to build business acumen by providing a foundational understanding of the components of a strategic and proactive HR/ER system. Through active learning, this course will encourage the development of analytical skills, personal competencies, and in-depth understanding of how various HRM and ER parts work together to shape organizational success. Students are more effective in their roles when they understand organizational strategic typologies, business functions, and governance structures that can affect the structure and implementation of the HRM/ER functions. Other topics include vertical and horizontal integration of the supply chain, and mergers and acquisitions, both of which are important to the work context. Basic finance and accounting concepts relevant to HRM/ER such as profit and loss statements, balance sheets, and cash flow enable students to understand how managers and leaders make resource decisions. Students gain credibility with other organizational decision makers by better understanding concepts such as earnings per share, return on assets (ROA) and return on investment (ROI). Understanding the time value of money and implications for decisions regarding investments in people enables students to be more effective in decision-making roles. The goal is to provide students with the fundamentals of the business context as relevant to their roles as HRM and ER professionals. The use of metrics and measures to provide feedback to the organization and individual employees will be examined. The criticality of understanding appropriate metrics and the importance of finding or creating valid, reliable, and bias-free metrics is explored. Learning how to create balanced score cards and associated HRM/ER scorecards can provide actionable insight to all organizational stakeholders. Finally, exposure to conceptual frameworks related to ethics and risk assessment will enable students to apply such frameworks in an organizational context. The goal is to have HRM and ER students develop a deep understanding of perspectives, practices, and tools that connect HRM and ER policies and practices to an organization’s context and strategy.

Prerequisites: LER 100 AND LER 305

Changes Effective Summer 2022:

- Change Abbreviation to LHR
- Title
- Abbreviated Title
- Prerequisites

LER 435: Labor Relations in the Public Sector (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

Analysis of labor relations problems within different areas of public employment. LER 435 LER 435 Labor Relations in the Public Sector (3)(BA) This course meets the Bachelor of Arts degree requirements. Upon completing this course, students should be able to identify the legal frameworks that govern collective bargaining between employers and unions in federal, state and local governments. Students should also be able to explain the process of collective bargaining in the government sector and the special circumstances that make public sector bargaining different from private sector bargaining. At course end, students should be able to identify the parties involved in public sector bargaining, including those involved in dispute resolution, and explain their priorities in the labor relations process. Students should come to understand and articulate the reasons why it is important to study and more fully comprehend the public sector labor relations process. Together, we will explore the distinctions between public and private sector employers that impact labor relations in the public sector, in order to better understand those distinctions. Also, we will explore the principal historical differences between negotiations in the public and private sectors, in order that students can better articulate those differences. In addition, we will work to understand the principal arguments for and against the right to strike for public sector employees, as well as other impasse resolution processes. Finally, we will work to identify and discuss the challenges facing public sector labor relations in the near term and in the intermediate term.

Prerequisite: 3 credits in Labor and Employment Relations
Changes Effective Summer 2022:

- Change Abbreviation to LHR
- Description
- Prerequisites

**LER 437: Workplace Dispute Resolution (3 Credits) (BA)**

Old Listing Effective Through Spring 2022:

Dispute resolution practices and procedures used in the workplace and employment law settings. LER 437 LER 437 Workplace Dispute Resolution (3)(BA) This course meets the Bachelor of Arts degree requirements. This course examines dispute resolution procedures in unionized and nonunion workplaces. The course begins with an examination of grievance procedures in unionized workplaces and the system of labor arbitration. Students will read labor arbitration decisions and learn how to research arbitration issues. The second major theme of the course is an examination of the design and use of nonunion workplace dispute resolution procedures. Students will read descriptions and analyses of examples of nonunion grievance procedures. Finally, the course will look at procedures for resolving employment law disputes and the major public policy debates surrounding mandatory nonunion arbitration procedures. Students will read some of the major legal cases in this area of the law and perspectives both for and against mandatory arbitration. A key objective of the course is to enable students to both understand and think critically about different alternative dispute resolution procedures and their role in employment relations. As part of achieving this objective, the course will include simulated dispute resolution exercises to provide students with experience in using techniques such as arbitration, mediation, and peer review. Additional course requirements include regular class attendance and participation, and paper assignments based on each of three main sections of the course. This course builds on and is complementary with other coursework in Labor and Employment Relations in the areas of employment relations, employment and labor law, and human resource management. It also compliments courses in other departments in the area of dispute management and resolution, including the Minor in Dispute Management and Resolution. LER 437 may also be taken as an elective by students in the MS in Human Resources and Employment Relations and compliments coursework in the graduate program.

Prerequisite: LER 100 or sixth-semester standing

Changes Effective Summer 2022:

- Change Abbreviation to LHR
- Description
- Prerequisites

**LER 444: Workplace Safety and Health: Principles and Practices (3 Credits) (BA)**

Old Listing Effective Through Spring 2022:

The role of employees, unions, employers, and government in dealing with work-related safety and health issues. LER 444 Workplace Safety and Health: Principles and Practices focuses on the roles of employees, unions, employers, and government in addressing work-related safety and health issues. The course will introduce students to the three interrelated fields of workplace safety, workplace health, and environmental protection. Students will be provided with an overview of key issues within these fields and gain an appreciation for their importance within the workplace. Students will also become familiar with the fundamental concepts involved in the management of workplace safety and health issues. LER 444 satisfies requirements within the Labor Studies and Employment Relations major and may be taken as an elective. LER 444 is complementary to other courses dealing with employee relations and legal principles within the workplace.

Prerequisite: LER 100 or sixth-semester standing

Changes Effective Summer 2022:

- Change Abbreviation to LHR
- Description
- Prerequisites

**LER 458Y: History of Work in America (3 Credits) (WF) (US) (BA)**

Old Listing Effective Through Spring 2022:

A study of selected problems in the history of work in the United States, especially since 1877.

Cross-Listed Courses: HIST 458Y

Prerequisite: HIST 021, HIST 156, or LER 100

Changes Effective Summer 2022:

- Change Abbreviation to LHR
- Description
- Prerequisites

**LER 464: Communication Skills for Leaders in Groups and Organizations (3 Credits) (BA)**

Old Listing Effective Through Spring 2022:

Theory and research-based communication skills for leaders dealing with work-related problems in contemporary groups and organizations. LER 464 Communication Skills for Leaders in Groups and Organizations (3) (BA) This course meets the Bachelor of Arts degree requirements. LER 464 Communication Skills for Leaders in Groups and Organizations is a survey of theory, research, and practice related to the communication processes by which individuals in groups and organizations exercise influence, whether or not they occupy positions of acknowledged leadership, and may be taken as part of an Labor and Industrial Relations major or minor, or as an elective by students in other disciplines. The course is offered once each academic year and has an enrollment limit of 40 students per offering. The course requires no special facilities. It extends to other courses in the major primarily in the areas of Industrial Relations and Human Resources. It is also complementary to courses focusing on groups and organizations in Sociology, Psychology, Management, and Engineering. During the course, students are exposed to a variety of theoretical perspectives on the study of leadership, learn about research illuminating its functions, and become acquainted with communication practices derived from and/or suggested by such theories and research that contribute to the exercise of influence and, thereby, effective group and organizational performance. These terminal outcomes define the objectives of the course. Focus will be on leadership as both role-related behavior and goal-directed behavior, regardless of roles that members of groups and organizations occupy.

Cross-Listed Courses: OLEAD 464

Changes Effective Summer 2022:
**LER 465: Collective Decision Making (3 Credits) (BA)**
*Old Listing Effective Through Spring 2022:*
Application of theories of decision making to work-related issues in groups and organizations requiring collective resolution and action. LER 465 Collective Decision Making (3)(BA) This course meets the Bachelor of Arts degree requirements. This course presents a broad overview of theories, research, and practices in decision making as related to work-related choice making in groups and organizations and is open to students majoring or minoring in Labor and Industrial Relations, as well as to students who may wish to use the course as an elective. The course is offered once each academic year and has an enrollment limit of 40 students per offering. It requires no special facilities. L I R 465 extends to other courses in the major, primarily in the areas of Industrial Relations and Human Resources. It is also complementary to courses dealing with decision making in groups and organizations in sociology, psychology, and management. Of particular interest are decision making practices, as well as theories that account for them, in single-motive situations (in which participants in the process are pursuing a common goal) and mixed-motive situations (in which two or more of the participants are competitively related, but must cooperate to achieve their objectives). Hence, the course deals both with (1) conventional decision making, as in the case of boards, task forces, problem-solving groups, and quality circles or teams, appropriate to single-motive situations and (2) processes, such as bargaining, negotiation, and dispute management/resolution, appropriate to mixed-motive situations. The course also deals with the influence of organizational culture on decision-making in both types of situations. Upon completing L I R 465, students will have been exposed to a broad array of theoretical perspectives on decision making in groups and organizations, will be familiar with research testing these theories, and be aware of decision making practices suggested by theory and research that are useful in situations requiring collective choice and action. These terminal outcomes of the course reflect the objectives.

**Changes Effective Summer 2022:**
- Change Abbreviation to LHR
- Description
- Prerequisites

**LER 494: Research Project (1-12 Credits: Maximum of 12 Credits) (BA)**
*Old Listing Effective Through Spring 2022:*
Supervised student activities on research projects identified on an individual or small-group basis.

**Changes Effective Summer 2022:**
- Change Abbreviation to LHR
- Description
- Prerequisites

**MNG 412: Mineral Property Evaluation (3 Credits)**
*Old Listing Effective Through Spring 2022:*
Ore reserve estimation using statistics and geostatistics, mine cost estimation, engineering economy concepts applied to mineral deposits.

**Changes Effective Summer 2022:**
- Description
- Prerequisites
- Concurrent
and interpretive capabilities of the class members within a large symphonic orchestra context. The repertoire includes the standard literature from the 19th and 20th centuries as well as new music written for symphony orchestra. Students will be assessed by the use of performance evaluation and assessment of participation and contribution to established goals of the ensemble. The course is for students who have advanced performance skills on standard orchestral string, wind, and percussion instruments. An audition is required.

Prerequisites: Audition

Changes Effective Summer 2022:

• Add Travel Component
• Description
• Remove Prerequisites

PLET 222: Introduction to Plastics Processing (4 Credits)
Old Listing Effective Through Spring 2022:

Introduction to plastic processing methods, materials, tooling, design, and equipment. Safe operation and practices are emphasized. PL ET 222 Introduction to Plastics Processing (4) This course provides an introduction to plastics processing and is intended to provide broad foundational knowledge of the different types of plastics processing methods, equipment, and materials. The educational objectives are to develop competency in the determination of potential methods for manufacturing various component designs and the determination of cost effectiveness for the possible process alternatives selected. After completing this course, the student should have a basic understanding of a multitude of plastic processing methods and have knowledge of the interrelationship of part and tool design as it impacts manufacturing. The student should also understand materials and material flow phenomena as it affects processing and should understand the processing and troubleshooting techniques typically found in the industry.

Enforced Prequisite at Enrollment: PLET 205

Changes Effective Summer 2022:

• Remove Enforced Prerequisites
• Add Concurrent

PLET 323: Packaging Processes (3 Credits)
Old Listing Effective Through Spring 2022:

In-depth studies and laboratory experiments will be conducted on processes such as blow molding, thermoforming, extrusion, and rotational molding, and other packaging processes. PLET 323 Packaging Processes (3) In this course the student will learn about plastic packaging processes of blow molding, thermoforming, extrusion. Other minor processes will be presented. The course objectives are to develop student proficiencies in identifying the polymer material requirements for each process, in identifying the mold design and construction techniques for each process, and knowing how plastic packaging processes differ from injection molding. The laboratory will include experiments that show the advantages of each process and to develop student competency in running equipment for each process explored. The students shall also develop competency in conducting elementary process troubleshooting for each process. Student competency is assessed by graded lab reports and projects.

Prerequisites: PLET 227 AND PLET 304

Changes Effective Summer 2022:

• Add Concurrent

PLET 345: Heat Transfer (2 Credits)
Old Listing Effective Through Spring 2022:

Fundamentals of heat transfer including conduction, convection, and radiation. PL ET 345 Heat Transfer (2) The course is intended to allow the student to develop the ability to conceptually evaluate heat transfer problems, and solve practical problems that might be encountered in the plastics industry including those that relate to energy management in plastic materials or processes. The course objectives are accomplished by establishing the concepts of the three principle mechanisms of heat transfer, solving plastics related problems illustrative of each mechanism, and reinforcing theoretical concepts learned through the use of simulation software and hands-on laboratory experiments. During this course students will build upon the knowledge gained in an earlier course in the thermal and fluid sciences. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year with an enrollment of 40 to 50 students.

Enforced Prerequisite at Enrollment: PLET 366

Changes Effective Summer 2022:

• Credits

PLET 464: Plastics Failure Analysis (3 Credits)
Old Listing Effective Through Spring 2022:

Fundamentals of Plastics Materials Process and Design Failure Analysis. PL ET 464 Plastics Failure Analysis (3) This course is intended to give the student an introduction to failure analysis for plastic articles. Course objectives are to: provide methods for the identification of common failure problems associated with modern molded plastic parts, perform a causal analysis for each failure type, provide an introduction, instruction, and allow operation of several analytical tools used to establish failure mechanisms, and review the relevant polymer physics and chemistry concepts involved in failure analysis. During the course students will be using concepts studied earlier in plastic material properties and applications. Student competency is assessed by graded quizzes, examinations, homework, and special assignments. The course is offered once per year as a technical elective with an enrollment of 15 to 20 students.

Prerequisites: Enforced Prerequisite at Enrollment: PLET 30

Changes Effective Summer 2022:

• Enforced Prerequisites

PNG 440W: Formation Evaluation (3 Credits) (WF)
Old Listing Effective Through Spring 2022:

Study of those methods used to evaluate the engineering properties of oil and gas bearing reservoir formations.

Concurrent Courses: PNG 405, PNG 406

Changes Effective Summer 2022:

• Description
PSYCH 230: Introduction to Psychologies of Religion (3 Credits) (BA)
Old Listing Effective Through Spring 2022:
Introduction to major Western psychologies of religion (James, Freud, Jung) and to subsequent extensions of and departures from them.

Changes Effective Summer 2022:
• Description
• Prerequisites

RADSC 295A: Radiologic Science Clinical Internship I (1.5 Credits: Maximum of 1.5 Credits)
Old Listing Effective Through Spring 2022:
Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required.
Prerequisites: Enforced Prerequisite at Enrollment: RADSC 101 and RADSC 110

Changes Effective Summer 2022:
• Abbreviated Title
• Prerequisites
• Concurrent

RM 440: Risk, Strategy, and Decision Making (3 Credits)
Old Listing Effective Through Spring 2022:
To examine key strategic concepts, ranging from cognitive to organizational, that are critical for managing risk at the enterprise level. RM 440 Risk, Strategy, and Decision Making (3) One of the key ways that a business attempts to manage risk is through organizational-level elements such as its business strategy, structure, and culture. These elements emerge from a series of decisions guided by the insights and biases of individuals. As such, the management of enterprise risk must also include an understanding of how individuals (e.g., managers) approach risk through their decisions and decision making processes. In this course, we look at some of these critical elements separately and then together as they integrate to guide and define enterprise risk management. The basic course objectives are to come away with an understanding of the following: Forms of strategic risk – From market to internally-driven risk; from emotional to economic-driven, how does strategic risk present itself? How do executives recognize/assess and respond to the “portfolio of risk” that they must address to make the business successful? Business strategy and structure – One way risk is addressed and articulated is through business strategy. What is strategy? What are the key decisions that comprise a business strategy? How are organizations structured to implement these strategies and move information across the firm? Where and how is risk assessed in these processes and structures, and incorporated into a strategic risk plan? Decision making – Decision making around strategy and risk management plays out in various forms and across different levels (i.e., individuals and groups). What goes right and wrong? How are these processes systematically linked to perceptions and actions associated with risk management. Organizational culture – Perhaps one of the most critical elements in enterprise risk management is the role played by organizational culture (or simply "How we do things around here and my role as an organizational member doing it.") We examine the roots of organizational culture and how it is aligned to perspectives of risk and its management. Descriptive vs. prescriptive perspectives – Once we "described" what does/could go on, we need to engage in looking at ways that organizations can prevent pitfalls and correct suboptimal practices.
Prerequisites: Enforced Prerequisite at Enrollment: RM 320W or RM 330W

Changes Effective Summer 2022:
• Description
• Enforced Prerequisites

SPAN 305: Spanish for Social Services (3 Credits)
Old Listing Effective Through Spring 2022:
Provides practical language applications for students going to social work, psychology, and the legal and medical professions. SPAN 305 Spanish for Social Services (3) SPAN 305 Spanish for Social Services (3) provides practical language applications for students going into social work, psychology, and the legal and medical professions. At the same time, there is an emphasis on the wide range of historic, linguistic and cultural influences that make up the Hispanic community in the US today.
Prerequisite: SPAN 200

Changes Effective Summer 2022:
• Remove Prerequisites
This course offers a comparative study of the literature, artistic manifestations, intellectual traditions, and cultural productions of Spain. This course offers a comparative study of the literature, artistic manifestations, intellectual traditions, and cultural productions of Spain. Depending on the semester focus, topics related to literary movements, comparative approaches to genre, and/or connections between textual representation and politics, social movements, and/or Spain’s long and complex history (both locally and globally) may be at the center of discussion. Additionally, varied issues of gender, race and ethnicity, rural and urban environments, religion, and evolving conceptions of nationhood may be included as overarching themes. Particular literary genres and representative works may be foregrounded in yet another iteration of the course, wherein students will study and discuss principal readings against cultural backdrops framed by exposure to art, film, music, and/or other historical, intellectual, sociopolitical, and/or media-based materials of relevance to the semester-specific context at hand.

Prerequisite: SPAN 200

Changes Effective Summer 2022:
- Remove Prerequisites

SPAN 354: Topics in Border Studies (3 Credits) (BA)
Old Listing Effective Through Spring 2022:

This course offers a study of borders as key sites of contact, exchange, conflict, hybridity, and identity production in and across varied contexts of Spanish, Latin American, and/or Latina/o culture(s). This course offers a study of borders — geopolitical, social, intellectual, literary, artistic, and/or historical — as key sites of contact, exchange, conflict, hybridity, and identity production in and across varied contexts of Spanish, Latin American, and/or Latina/o culture(s). While diverse variables (including diaspora, gender, race and ethnicity, sexuality, colonialism, nationhood and transnationalism) will inform particular iterations of the course, approaches and text selection will be shaped by an understanding of borders as constructs defined by conditions of dynamic interaction and transformation. Materials to be considered in the course, which will vary according the focus, may include literary, artistic, and intellectual works, film, mediabased texts, music, and/or historical documents.

Prerequisite: SPAN 200

Changes Effective Summer 2022:
- Remove Prerequisites

SUR 381: Stormwater Hydraulics and Hydrology (4 Credits)
Old Listing Effective Through Spring 2022:

Hydraulics: statics, continuity, energy, friction; hydrology: rainfall, abstractions, travel time, runoff; stormwater design: sewers, culverts, basins, erosion; municipal regulations. SUR 381 Stormwater Hydraulics and Hydrology (4) Stormwater Management Hydraulics and Hydrology is an elementary treatment of common design practices used to create stormwater management plans for small to medium sized land development projects. Erosion and sedimentation design is also addressed within the context of a stormwater management plan. The course is intended for engineering students who are not required to take formal fluid mechanics or hydrology courses, yet have a need to understand or complete the design aspects of stormwater management as it relates to their professional practice. Some state professional registration laws refer to this type of engineering design as “minor engineering” which is engineering design as it relates to land surveys connected to land development activities. Other types of “minor engineering” include street alignment, sanitary sewers, water lines, utilities and site grading. The course contains three segments. The first segment covers the elementary hydraulics necessary to design drainage structures and storm water detention facilities. These topics include fluid statics, continuity, conservation of mass, conservation of energy, friction losses, minor losses, energy grade line, open channel flow, weirs and orifices. The second segment covers elementary hydrology methods used to analyze runoff from land development sites and small to medium watersheds. The hydrology topics include watershed characteristics, rainfall, abstractions, runoff, time of concentration, peak flow methods, hydrograph methods, basic channel routing and detention basin routing. The third segment covers government regulations and common design methods used to design storm sewers, detention basins and erosion control plans. A project includes the design of a multipleelement storm sewer system, a stable open channel, a detention facility with a multiple outlet structure, and some erosion control measures.

Prerequisites: MATH 141 , 6th semester standing; Concurrent: PHYS 213

Changes Effective Summer 2022:
- Remove Concurrent

Course Changes: Effective Fall 2022

AA 122: Introduction to Graphic Storytelling (3 Credits)
Old Listing Effective Through Summer 2022:

Introduction to Graphic Storytelling is a studio exploring the visual language of comics and graphic novels. Assignments will include writing and drawing exercises, and short and long-form comics projects. Students will study the formal concerns of visual sequence and storytelling, layout and lettering, and traditional drawing materials. Subjects of study and discussion will include contemporary comics manifestions, intellectual traditions, and cultural productions of Spain. This course offers a comparative study of the literature, artistic manifestations, intellectual traditions, and cultural productions of Spain. This course offers a comparative study of the literature, artistic manifestations, intellectual traditions, and cultural productions of Spain. Depending on the semester focus, topics related to literary movements, comparative approaches to genre, and/or connections between textual representation and politics, social movements, and/or Spain’s long and complex history (both locally and globally) may be at the center of discussion. Additionally, varied issues of gender, race and ethnicity, rural and urban environments, religion, and evolving conceptions of nationhood may be included as overarching themes. Particular literary genres and representative works may be foregrounded in yet another iteration of the course, wherein students will study and discuss principal readings against cultural backdrops framed by exposure to art, film, music, and/or other historical, intellectual, sociopolitical, and/or media-based materials of relevance to the semester-specific context at hand.

Prerequisite: SPAN 200

Changes Effective Summer 2022:
- Add GA and BA attributes
- Change Description

AED 489: Advanced Practicum (3 Credits)
Old Listing Effective Through Summer 2022:

Supervised observation, unit planning, and teaching in Saturday Morning Arts School: analysis of creative expressions and art programs for learners.

Prerequisite: Enforced Prerequisite at Enrollment: AED 401. Enforced Concurrent at Enrollment: AED 490

Changes Effective Fall 2022:
- Credits
- Description

ARMY 101: U.S. Army Organization and Functions (2 Credits)
Old Listing Effective Through Summer 2022:
Introduction to U.S. Army and ROTC: their organization, missions and functions; customs and traditions; leadership laboratory.

**Changes Effective Fall 2022:**

- Credits
- Titles
- Description

**ARMY 102: The Military Profession: Leadership and Management Theory (2 Credits)**

Old Listing Effective Through Summer 2022:

Introduction to leadership techniques and basic management skills; leadership laboratory.

**Changes Effective Fall 2022:**

- Credits
- Abbreviated Title
- Description

**ARMY 203: Army Operations: Tactics and the Principles of War (2 Credits)**

Old Listing Effective Through Summer 2022:

Organization and operation of Army units; fundamentals of unit tactics; leadership laboratory.

**Changes Effective Fall 2022:**

- Course Number to 201
- Credits
- Titles
- Description

**ARMY 204: Land Navigation: Topographic Maps and Orienteering (2 Credits)**

Old Listing Effective Through Summer 2022:

Military and topographic maps; methods of orienteering and land navigation; leadership laboratory.

**Changes Effective Fall 2022:**

- Course Number to 202
- Credits
- Titles
- Description

**ARMY 301: Advanced Principles of Leadership and Management (3 Credits)**

Old Listing Effective Through Summer 2022:

Principles of military leadership; military skills development; land navigation; physical fitness; leadership laboratory.

**Changes Effective Fall 2022:**

- Titles
- Description

**ARMY 302: Advanced Principles of Military Leadership and Combat Operations (3 Credits)**

Old Listing Effective Through Summer 2022:

Leadership in the field; principles of offense, defense, and patrolling; physical fitness, leadership laboratory.

**Changes Effective Fall 2022:**

- Long Title Description

**ARMY 401: Organizational Behaviors: Interrelationships of Directing Staffs and Staff Functions (3 Credits)**

Old Listing Effective Through Summer 2022:

Leadership; command and staff functions; ethics and professionalism; military writing; leadership laboratory.

**Changes Effective Fall 2022:**

- Titles
- Description

**ARMY 402: Army Personnel Management and Logistics (3 Credits)**

Old Listing Effective Through Summer 2022:

Leadership; army personnel management; logistics system; personnel counseling; military justice; Soviet military; personal affairs; training management; army life; leadership laboratory.

**Changes Effective Fall 2022:**

- Titles
- Description

**CAMS 12: Lands of the Bible (3 Credits) (IL) (BA)**

Old Listing Effective Through Summer 2022:

Utilizing the textual and archaeological evidence, this course introduces students to the lands, cultures, and peoples associated with the Hebrew Bible, New Testament, and Qur’an. Geographically, the lands of the Bible encompass what is often referred to as the Cradle of Civilization or Fertile Crescent – an arc-shaped region defined by the Nile, Jordan, Tigris and Euphrates river valleys. Today this crescent includes the modern countries and regions of Egypt, Israel, the Palestinian territories, Jordan, Syria, southeastern Turkey, and Iraq. Spanning ten millennia of history (ca. 9000 BCE-750 CE), this course explores a series of landmarks in the history of human development, which are considered together with Jewish, Christian, and Islamic traditions. These include the birth of religion and the agricultural revolution (Garden of Eden), the first cities and the invention of writing (Tower of Babel; Patriarchal/Matriarch traditions), Egyptian imperial rule in Canaan (Exodus), the collapse of the Bronze Age (Emergence of Israel), impact of empire (united and divided kingdoms of Israel and Judah), Alexander the Great and the Roman imperial expansion to the east (world of Jesus and development of rabbinic Judaism), Byzantine Palestine (expansion of Christianity), and the Islamic conquest of the Holy Land. Through an integration of numerous disciplines, including historical geography, archaeology, ancient history, biblical studies, epigraphy, and anthropology, students will investigate the interaction between the cultures of the ancient Near East and the religious traditions that developed in the lands associated with the Bible, a relationship that continues to shape the region and the world until today.
COMM 282: Television Field Production (3 Credits)
Old Listing Effective Through Summer 2022:

COMM 282 Television Field Production (3) COMM 282 provides an introduction to the pre-production, production and post production techniques when creating video content. The course will explore the grammar and syntax of constructing and criticizing video messages in single camera productions. Students will apply shooting and editing concepts while doing a variety of projects typical of single camera shoots. Students will learn the particularities of single camera production from the textbook, the lectures, discussions and classmates’ experiences. While learning the technical aspects of video production, the students will learn the managerial aspects of production. Students will practice and apply the processes of budgeting, topic and location research, script writing, production treatments, dealing with unions, releases, etc.

Changes Effective Fall 2022:

- Titles
- Description

COMM 283: Television Studio Production (3 Credits)
Old Listing Effective Through Summer 2022:

Students will learn the technical aspects of multi-camera studio television production. COMM 283 Television Studio Production (3) Communications 283W is an advanced video course. The course builds on the principles learned in Communications 282. The purpose of this course is to teach advanced video techniques. The first goal is to teach advanced technical aspects of multi-camera (studio) television production. Students will learn how to brainstorm ideas, write program proposals, treatments and scripts for various formats of television studio production. Incorporated in the technical aspects of the class, the students will learn how to produce and direct a studio production. They will also learn all the crew positions in a television studio production including audio, teleprompter, technical director, assistant director, videotape, floor manager, character generator operator and camera crew. The second goal of this course is to apply the grammar and syntax of constructing and criticizing video messages to multi-camera television productions. Students will apply shooting, producing and directing concepts while doing a variety of projects typical of multiple-camera shoots. They will learn the particularities of multicamera television production from lectures, discussions and their own experiences.

Prerequisites: Enforced Prerequisite at Enrollment: COMM 282 or COMM 242

Changes Effective Fall 2022:

- Titles
- Prerequisites

COMM 360: Radio Reporting (3 Credits)
Old Listing Effective Through Summer 2022:

Reporting, writing, producing, and presenting radio news programs, focusing on the development of news judgment and writing skills. COMM 360 Radio Reporting (3) COMM 360 provides an introduction to broadcast news writing and radio production. Students take this course after they have completed an introductory print reporting course but before they take advanced courses that focus on television news production. This course is designed to introduce students to the general principles of broadcast writing used in both the radio and television mediums. As a prerequisite for 400-level courses, COMM 360 is offered on a regular basis to allow students to complete curricular requirements in a timely manner. Students learn the techniques needed to report, write and produce radio news. During the semester, students report on news and learn to produce, anchor and engineer a newscast. Learning objectives for COMM 360 are that students: * demonstrate an understanding of professional ethical principles in news reporting and apply those principles in newsgathering; * demonstrate basic proficiency in the tools used to report and produce broadcast-quality radio news; * demonstrate the ability to write news for a broadcast format; * demonstrate the ability to produce quality work on deadline; * apply an understanding of news values in the creation of a newscast; and * demonstrate the ability to supervise other students in a working newsroom. Students work together in a broadcast facility to produce a radio newscast. They are evaluated throughout the semester on their ability to integrate skills and concepts they learn into their broadcast stories. Upon successful completion of the course, students will have learned the theories and skills at the core of their broadcasting profession.

Prerequisites: Enforced Prerequisite at Enrollment: COMM 260W

Changes Effective Fall 2022:

- Long Title
- Prerequisites

COMM 383: Advanced Video Production (1-3 Credits)
Old Listing Effective Through Summer 2022:

Advanced video production techniques and production management issues. COMM 383 Advanced Video Production (1-3) This course uses rotating topics to teach advanced video and television production techniques. Building on the concepts and skills taught in the introductory production course, students will learn advanced techniques in production budgeting, preproduction planning, location scouting, logistics, advanced lighting and audio techniques, post-production techniques, video formats and distribution issues. Each semester the instructor will choose an appropriate project that will serve as the focus of the course. Projects that occur outside the studio will include logistical issues such as power supply and safety and environmental considerations. Examples of projects include coverage of live sporting events, development of scripted and non-scripted programs, and exploration of alternative distribution platforms via the Internet and alternative telecommunications networks.

Prerequisites: Enforced Prerequisite at Enrollment: COMM 283

Changes Effective Fall 2022:

- Credits
- Titles
COMM 384: Telecommunications Promotion and Sales (3 Credits)
Old Listing Effective Through Summer 2022:

Principles of marketing services to telecommunication and information products/services; models of customer-focused selling and their applications to media time sales. COMM 384 Telecommunications Promotion and Sales (3) The two-fold objective of this course is learning the foundations of service marketing and achieving technical proficiency in applying models of customer focused selling. The context is the ever-changing marketplace for voice, video, and data services in computing, telephone, broadband (cable) and broadcasting. Topics covered include principles of services marketing and of customer-focused selling, electronic marketing, distribution and sales, selling media advertising products, (television, radio, Web), niche position marketing for voice, video and data services, marketing and advertising trends in Ecommerce. Classroom time is devoted to lecture, discussion, team activities and presentations. Other course work may involve online discussion groups and other forms of electronic distributed learning, creating and presenting sales presentations to actual clients and study by case method.

Prerequisites: Enforced Prerequisite at Enrollment: COMM 180 or COMM 320

Changes Effective Fall 2022:

• Titles
• Description
• Prerequisites

COMM 450A: Search Engine Marketing (3-3 Credits: Maximum of 3 Credits)
Old Listing Effective Through Summer 2022:

This project-oriented course provides students with the knowledge and skills necessary to conduct a sponsored research and keyword advertising-based marketing campaign. This course offers the students an opportunity to gain knowledge and hands on experience on sponsored search and keyword advertising. In this course, students will gain knowledge and skills to advertise products and services using keyword advertising. Strategies for developing successful advertising campaigns will be discussed, including targeting potential customers based on the geo-location, applying A/B testing to identify the feasible advertising set-up, and organizing keywords with various products and services for effective management. In addition, various tools will be introduced to students for facilitating efficient and effective performance. By participating in a firm-based project, the students will acquire the experience of business consulting for advertising using current web-based techniques.

Cross-Listed Courses: IST 450A

Prerequisites: Enforced Prerequisite at Enrollment: COMM 310 or IST 310

Changes Effective Fall 2022:

• Abbreviated Title
• Description
• Prerequisites

CSD 444: Introduction to Organic Disorders of Speech and Language (3 Credits)
Old Listing Effective Through Summer 2022:

Etiology, diagnosis, and principles of treatment of stuttering, and of speech and language disorders having organic bases. CSD 444 CSD 444 Introduction to Organic Disorders of Speech and Language (3) The course is required for Communications Sciences and Disorders majors, and should be taken during the third or fourth year. The intent of this course is to provide students with a basic understanding of stuttering, related fluency disorders, and other organic disorders. The course is designed to facilitate critical thinking through problem solving with emphasis on the etiology and treatment of organic speech disorders. The educational objectives are that students will acquire an understanding of: 1) stuttering and related fluency disorders with emphasis on causation theories and assessment techniques, and 2) other organic disorders causing speech disorders with emphasis on stroke and closed-head trauma.

Prerequisites: Enforced Prerequisite at Enrollment: CSD 300 and CSD 331

Changes Effective Fall 2022:

• Abbreviated Title
• Description
• Prerequisites

ENGL 202D: Effective Writing: Business Writing (3 Credits) (GWS)
Old Listing Effective Through Summer 2022:

Writing reports and other common forms of business communication. A student may take only one course for credit from ENGL 202A, 202B, 202C, and 202D.) ENGL 202D is an advanced writing course designed to help students develop the writing strategies that they will need to write successfully on the job and to help them understand why those strategies are appropriate and effective. A key emphasis will be on rhetorical principles of effective communication, including audience analysis and defining clear, actionable purpose. Students will gain experience with a wide range of business writing genres, including reports, letters, job application documents, emails, memos and web applications like business blogs, online articles, social media profiles and personal branding. Students will also learn about the importance of document design, including how best to utilize headings, page layout, graphics and other visuals to maximize the potential for communication success.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T) and should be taken during the third or fourth year. The intent of this course is to provide students with a basic understanding of stuttering, related fluency disorders, and other organic disorders. The course is designed to facilitate critical thinking through problem solving with emphasis on the etiology and treatment of organic speech disorders. The educational objectives are that students will acquire an understanding of: 1) stuttering and related fluency disorders with emphasis on causation theories and assessment techniques, and 2) other organic disorders causing speech disorders with emphasis on stroke and closed-head trauma.

Prerequisites: Enforced Prerequisite at Enrollment: CSD 300 and CSD 331

Changes Effective Fall 2022:

• Abbreviated Title
• Description
• Prerequisites

ENGL 405: Taking Shakespeare From Page to Stage (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

Students experience a Shakespeare play as a text to be explicated and as a script to be performed.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)
Changes Effective Fall 2022:

• Prerequisites

**ENGL 406M: Honors Course in English: General Topic in Recent Literature (3-12 Credits: Maximum of 12 Credits) (H) (WF) (BA)**
Old Listing Effective Through Summer 2022:

This advanced Honors Seminar in literature, rhetoric, and cultural studies allows students to explore and research a topic related to recent literary culture. Topics will vary depending on the course instructor but may include the study novels, poetry, drama, theory, film, nonfiction, or rhetoric. Recent topics have included Alfred Hitchcock, contemporary novels, prison narratives, authors and artists, and apocalyptic fiction. Assignments will include extensive primary and secondary reading, participation in class discussion, and a substantial paper or final project. Departmental approval required (for more special information please refer to the notes section in LionPATH).

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

**ENGL 407: History of the English Language (3 Credits) (IL) (BA)**
Old Listing Effective Through Summer 2022:

This course provides an accessible overview of the English language from its earliest beginnings as an insular language to its current place as a global language. One central issue will be the ways in which the external history (culture, political power, geography) of the language has impacted its internal history (spelling, pronunciation, dialect) over time. In the process, we will examine several representative English texts which illustrate significant moments in this long process of language change. Other topics will include the traces of early English vocabulary and structures in modern English, sound changes and pronunciation, English’s heavy lexical borrowing from other languages, the politics of language and language use, longstanding debates over what constitutes standard English, the impact of prescriptive language guides, varieties of spoken and written English, the English language and colonialism, English as a global language, and the influence of technologies.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

**ENGL 408M: Honors Seminar in English: General Topic in Post-1800 Literature (3-12 Credits: Maximum of 12 Credits) (H) (WF) (BA)**
Old Listing Effective Through Summer 2022:

This advanced Honors Seminar in literature and literary and cultural history allows students to explore and research a topic related to post-18th century literary culture. Topics will vary depending on the course instructor but may include the study 19th- or 20th-century novels, poetry, drama, theory, film, nonfiction, or rhetoric. Recent topics have included critical medical humanities, historical novels, Victorian underground literature, spiritual biography, and the 1890s. Departmental approval required (for more special information please refer to the notes section in LionPATH).

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

**ENGL 409: Composition Theory and Practice for Teachers (3 Credits) (BA)**
Old Listing Effective Through Summer 2022:

An overview of the theory and practice of writing for teachers, with emphasis on the writing process. ENGL 409 Composition Theory and Practice for Teachers (3)(BA) This course meets the Bachelor of Arts degree requirements. ENGL 409 is intended to help teachers improve their writing instruction by immersing them in composition theory and providing them with the opportunity to learn the writing process through personal experience. On completion of the course, participants will be able to: ? Articulate and test composition theory in written works ? Work through each phase of the writing process in assigned essays ? Develop strategies for writing effectively in various genres and styles, including journal writing ? Produce written works which demonstrate an awareness of audience ? Implement recommendations for effective revisions ? Provide responsive feedback to peers’ written work ? Develop a precis for a model lessonEvaluation: Students will be evaluated on their knowledge and understanding of instructional objectives, demonstrated in written assignments, class discussions and other projects.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

**ENGL 411M: Honors Seminar in English: Creative Writing (3-12 Credits: Maximum of 12 Credits) (H) (WF) (BA)**
Old Listing Effective Through Summer 2022:

Advanced Seminars in Creative Writing focus on a particular genre and/or topic. Genres include poetry, fiction, graphic novel, memoir, creative non-fiction, essay, or drama. Topics vary. Students work as apprentice writers, reading the work of published and expert authors, experimenting within the genre, engaging in structured peer review and group workshops, and preparing texts for publication and contest submission. Students discuss a number of issues relevant to the practice of creative writing and the production of literature, such as innovation and circulation, and numerous techniques, including the establishment of voice, creation of character plot development, pacing, and principles of prosody. Students may also consider the responsibilities of literary citizenship and the ethics of artistic representation. The courses offer an intense investigation of creative writing craft. Students develop skills in close, critical reading through the examination of exemplary works of contemporary literature and craft analysis, often reading an entire book per week. They also learn to read analytically and practically in workshop critiques of peer writing. In workshop discussion, students engage in a range of critical and editing tasks from close reading to broad conceptualization; they develop the ability to communicate ideas clearly and extemporaneously, and to negotiate meaning with others. Students experiment with and
hone various writing techniques by executing focused exercises and drafting and developing pieces for final submission. They apply critical and analytical reading skills to revise and strengthen their own writing. The final project may include drafts and polished versions of two to three stories or essays, and up to a dozen poems.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Prerequisites

ENGL 412: Advanced Fiction Writing (3-3 Credits: Maximum of 12 Credits) (BA)
Old Listing Effective Through Summer 2022:

Advanced study of the techniques of fiction writing; regular practice in writing the short story; group discussion of student work.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 212 and [ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)]

Changes Effective Fall 2022:

- Prerequisites

ENGL 413: Advanced Poetry Writing (3-3: Maximum of 12 Credits) (BA)
Old Listing Effective Through Summer 2022:

Advanced study of the techniques of poetic composition; regular practice in writing poetry; group discussion of student work.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 213 and [ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)]

Changes Effective Fall 2022:

- Prerequisites

ENGL 416: Science Writing (3-3 Credits: Maximum of 6 Credits) (BA)
Old Listing Effective Through Summer 2022:

Prepares scientists and writers to gather, interpret, and present scientific information to the layman with clarity and accuracy.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Prerequisites

ENGL 417: The Editorial Process (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

The process of editing from typescript through final proof.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Prerequisites

ENGL 418: Advanced Technical Writing and Editing (3-3 Credits: Maximum of 6 Credits) (BA)
Old Listing Effective Through Summer 2022:

Preparing and editing professional papers for subject specialists and for others interested in careers as writers or editors.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Prerequisites

ENGL 419: Advanced Business Writing (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

Preparing and editing reports and presentations common to business, industry, and government.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Prerequisites

ENGL 420: Writing for the Web (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

Analysis and composition of informative, persuasive, and “creative” Web texts, based on rhetorical principles; no prior Web writing experience required. ENGL 420 Writing for the Web (3)(BA) This course meets the Bachelor of Arts degree requirements. This course, designed for writers and potential writers, will explore the unique opportunities and constraints of writing for the Web. As a writing course, it should appeal to students in the Humanities; however, because of the growing importance of Web texts in fields such as business and the social sciences and given the opportunity to compose/construct a variety of fictional and non-fictional “creative” and informative/persuasive Web texts, this course should be of value to students across the college. In this course, students will survey a wide variety of Web texts—webs, electronic journals and books, learning to analyze these as to their efficacy in light of each text’s rhetorical situation. As students learn to compose and construct such
texts themselves, rhetorically based principles of audience awareness and persuasive appeal will be emphasized. Rather than focusing on writing HTML codes and Java scripts, this course will build on the rhetorical principles taught in first-year writing courses, teaching students how to apply those principles to more sophisticated, multi-sensory, multimedia hyper textual writing. The course will be taught primarily in a hands-on workshop environment-in a PC computer lab or laptop-equipped classroom. Although no prior Web writing experience is required, some experience with Web navigation and computer word processing will be helpful. Students will be evaluated on the basis of their participation/attendance in the course's workshop environment, written web analyses, and constructed web texts.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:
• Prerequisites

ENGL 421: Advanced Expository Writing (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Develops skill in writing expository essays, with particular attention to style. Intended for liberal arts majors.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:
• Prerequisites

ENGL 426: Chicana and Chicano Cultural Production: Literature, Film, Music (3-3 Credits: Maximum of 3 Credits) (US) (BA)
Old Listing Effective Through Summer 2022:
An in-depth study of Chicana/Chicano literature, film, and music from the inception of the Chicano Movement (1965-1975) to the present. ENGL 426 Chicana and Chicano Cultural Production: Literature, Film, and Music (3) (US)(BA) This course meets the Bachelor of Arts degree requirements. ENGL 426 will constitute an in-depth study of Chicano/a literature, film, and music from the inception of the Chicano movement (1965-1975) to the present. In addition to primary aesthetic texts, students will read historical, political, and theoretical essays designed to situate the Chicano/a cultural texts in historical and political context. The aim of the course is to give students a better understanding of Chicano/a cultural production by situating these works of art against other U. S. artistic traditions and within wider historical and political movements. Authors and artists under consideration in this class will vary, but will likely include Luis Valdez, Tomas Rivera, Estella Portillo Trambley, Oscar Zeta Acosta, Corky Gonzales, Gloria Anzaldúa, Norma Alarcon, Cherrie Moraga, Richard Rodriguez, Dagoberto Gilb, Rolando Hinojosa, Alfredo Vea, Charlie Trujillo, Diego Vasquez Jr., Joe Rodriguez, Tomas Almaguer, Jose Esteban Munoz, Manuel Ramos, Lucha Corpi, Rudolfo Anaya, Michael Nave. This class will prepare students for advanced courses in Latin/a literatures as well as other academic courses that engage in the verbal and written analysis of complex texts. Students will be evaluated by means of essays written in and out of class, essay exams, group projects, term-long journals, and class participation. Students should expect to complete a minimum of three written assignments in the course of the term. The course may be used as ENGL major elective credit or as credit towards the ENGL minor and will be offered once a year with 40 seats per offering.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Cross-Listed Courses: LNST 426

Changes Effective Fall 2022:
• Prerequisites

ENGL 427: Topics in Jewish American Literature (3-3 Credits: Maximum of 9 Credits)
Old Listing Effective Through Summer 2022:
An in-depth examination of important themes, writers, and/or historical developments in Jewish Literature of the United States. ENGL (JST) 427 Topics in Jewish American Literature (3) This course will provide sustained examination of major themes, texts, and figures in the Jewish American literary tradition. The course will focus on depth rather than breadth in its analysis of the defining aspects of the literature and on what the literature reveals about Jewish American culture and identity. The United States has absorbed large numbers of Jewish immigrants from many parts of the world, holding many different ideas about Jewish practice, and affiliating themselves with many different political, social, and cultural traditions, and moreover Jews have settled and made homes in a wide variety of American communities. Close analysis of literature will therefore provide an opportunity to consider the constitution, origin, and development of Jewish America's wider cultural, political, and social contexts. Materials will consist predominantly of primary texts, including prose fiction and nonfiction, poetry, drama, and film, and the methodology will emphasize the close reading of these texts. The course complements offerings in Jewish Studies, English, and Comparative Literature. Most obviously, the course will offer students of Jewish literature, world literature, and American literature an opportunity for contextualization. It enables students in Jewish Studies to study the rich literature of American Jews, and it adds to courses covering Jewish American history, religion, and culture. The course offers students in English and Comparative Literature a valuable, sustained introduction to an important U.S. and world sub-culture and -literature.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Cross-Listed Courses: JST 427

Changes Effective Fall 2022:
• Prerequisites

ENGL 430: The American Renaissance (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Studies in the works and the interrelationships of writers such as Emerson, Hawthorne, Poe, Thoreau, Whitman, Melville, and Dickinson. The course will cover Transcendentalism and the authors who contributed to this movement, many of whom lived in Concord, MA. Though the class will feature the works of Emerson, Hawthorne, and Thoreau, it can also branch out to address other authors such as Margaret Fuller, Jones Very, and Elizabeth Peabody. Departing from Concord, the course will explore Walt Whitman and Emily Dickinson, both of whom read and were inspired by Emerson. Finally, the course will include works by
Herman Melville, who formed a friendship with Hawthorne prior to writing Moby-Dick. Though literature constitutes the center piece of this course, iterations of the course may bring in other parts of the cultural, social, and political landscape: slavery, abolitionism, Jacksonian Democracy, western settlement, art, science, and technology.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Cross-Listed Courses: AMST 470

Changes Effective Fall 2022:

• Prerequisites

ENGL 431: Black American Writers (3-3 Credits: Maximum of 6 Credits) (US) (BA)
Old Listing Effective Through Summer 2022:

A particular genre or historical period in the development of Black American literature. ENGL 431 / AMST 475 Black American Writers (3) (US) A study of a particular genre or historical period in the development of Black American literature. This course will allow faculty and students to focus a semester’s study on a particular genre, theme, or problem in African-American literature. The flexibility of the course will allow faculty a forum in which to share current scholarship or to relate issues in African-American literature to larger school-wide themes in a classroom environment. Because of the potential variety of topics and faculty members, specific evaluation methods will be determined by the instructor and specified in the syllabus. The course will be offered once every two years with an expected enrollment of 25 students. The course satisfies the "area" requirement in culture for American Studies majors.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Cross-Listed Courses: AMST 475

Changes Effective Fall 2022:

• Prerequisites

ENGL 432: The American Novel to 1900 (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

Such writers as Hawthorne, Melville, Stowe, Mark Twain, James, Crane, Chopin, and others.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Change Effective Fall 2022:

• Prerequisites

ENGL 433: The American Novel: 1900-1945 (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

Such writers as Wharton, Dreiser, Cather, Fitzgerald, Faulkner, Hemingway, Hurston, Wright, and others.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 434: Topics in American Literature (3-3 Credits: Maximum of 99 Credits) (BA)
Old Listing Effective Through Summer 2022:

Focused study of a particular genre, theme, or problem in American literature. (May be repeated for credit.) ENGL 434 / AMST 472 Topics in American Literature (3) This course will allow faculty and students to focus a semester’s study on a particular genre, theme, or problem in American literature. The flexibility of a topics course will allow faculty a forum in which to share current scholarship or to relate issues in American literature to larger school-wide themes in a classroom environment. Because of the potential variety of topics and faculty members, specific evaluation methods will be determined by the instructor and specified in the syllabus. The course will be offered once every two years with an expected enrollment of 25 students. The course satisfies the "area" requirement in culture for American Studies majors.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 435: The American Short Story (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

Development of the short story as a recognized art form, with emphasis on major writers.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 436: American Fiction Since 1945 (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

Study of novels and short fiction written in the United States since World War II, with attention to different movements, traditions, and genres.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 437: The Poet in America (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
American poets such as Bradstreet, Taylor, Poe, Emerson, Whitman, Dickinson, Frost, Eliot, Stevens, Hughes, Brooks, Moore, Williams, Plath, Rich, Lowell.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 438: American Drama (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Development from the colonial period to playwrights such as O'Neill, Wilder, Hellman, Miller, Williams, Albee, Shepard, Norman, Wilson, and others.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 439: American Nonfiction Prose (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Major prose writers such as Franklin, Emerson, Thoreau, Fuller, Henry Adams, Maier, Baldwin, McCarthy, Dillard, Didion, Angelou, and others.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 440: Studies in Shakespeare (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Focused study of a single genre, topic, or critical approach to selected plays by Shakespeare and contemporaries

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 441: Chaucer (3 Credits) (IL)
Old Listing Effective Through Summer 2022:
This course surveys the literary career of Geoffrey Chaucer, perhaps the most celebrated English-language poet of the medieval ear. The course primarily examines Chaucer’s own writings, with consideration of the several international authors and traditions that informed his own literary productions. Selections may vary, but students will read texts from across Chaucer’s career, including from major works like Troilus and Criseyde and The Canterbury Tales. Readings from Chaucer’s sources and models may include translated selections from Boethius’s Consolation of Philosophy or from Guillaume de Lorris and Jean de Meun’s Romance of the Rose, and/or examples from relevant literary genres such as romance, fabliaux, beast fable, sermon, tragedy, and exemplum. Accordingly, students will develop a knowledge and appreciation of how Chaucer shaped (and was shaped by) his continental influences and the ways in which he developed a poetic tradition in English that proved deeply influential for many centuries.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 442: Medieval English Literature (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Study of major works and genres of medieval English literature, exclusive of Chaucer.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 443: The English Renaissance (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Study of different early modern texts and traditions, with attention to poetry, drama, fiction, and nonfiction.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 444: Shakespeare (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Selected tragedies, comedies, and histories.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 445: Shakespeare’s Contemporaries (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Selected plays by Shakespeare’s major predecessors and contemporaries: Kyd, Marlowe, Jonson, Webster, Marston, Middleton, and others.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)
Changes Effective Fall 2022:
• Prerequisites

ENGL 446: Milton (3 Credits) (BA)

Old Listing Effective Through Summer 2022:
Analysis of principal poems and their background.
Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:
• Prerequisites

ENGL 447: The Restoration and the Eighteenth Century (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Study of different English writers and traditions from the neoclassical age (1660-1776), with attention to poetry, fiction, romance, and drama.
Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:
• Prerequisites

ENGL 448: The English Novel to Jane Austen (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Study of different writers and traditions in the early English novel.
Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:
• Prerequisites

ENGL 449M: Honors Seminar in English: Pre-1800s literature (3-12 Credits: Maximum of 12 Credits) (H) (WF) (BA)
Old Listing Effective Through Summer 2022:
This course offers honors students the opportunity to explore in depth a period of early English literature before 1800. Topics will vary from year to year, but may include Beowulf and Anglo-Saxon literature and culture, late medieval authors such as Chaucer, Gower, and Langland, sixteenth-century lyric poets, Shakespeare, Shakespeare and film, Elizabethan dramatists, authorship and book history, early women authors, seventeenth-century writers such as Donne, Herrick, Wroth, and Bacon, writers of the English Revolution, Milton, and eighteenth-century writers such as Pope, Dryden, and Swift. Assignments will include extensive primary and secondary reading, participation in class discussion, and a substantial paper or final project. Departmental approval required (for more special information please refer to the notes section in LionPATH).

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:
• Abbreviated Title
• Prerequisites

ENGL 450: The Romantics (3 Credits) (IL) (BA)
Old Listing Effective Through Summer 2022:
Writers of the British Romantic period (roughly 1790 to 1832) often made sweeping claims for the power of poetry and imagination. Percy Bysshe Shelley contended that "poets are the unacknowledged legislators of the world," while John Keats declared that "beauty is truth, truth beauty." Against the background of political revolution in France, the rise of industrialization and empire, and increasing social instability, Romantic writers turned to nature as a source of the self and looked back to childhood as a site of both innocence and ambivalence. Others turned their efforts to the supernatural and the gothic, hoping to inspire what Samuel Taylor Coleridge called "that willing suspension of disbelief for the moment which constitutes poetic faith." This course is designed to provide an introduction to the richness and diversity of Romantic-era literature. It is not intended to be an exhaustive overview of the entire period, but rather an introduction to the best known Romantic ideas; many of which still influence the way we think about art and literature in the present day as well as an invitation to further study and engagement. In that spirit, we will not work from a predetermined definition of "romanticism," but instead will build a collective, working understanding of the concept.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:
• Prerequisites

ENGL 451: Literary Modernism in English (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Survey of literary modernism in English and English translation in a variety of genres, including poetry, fiction, and drama.
Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:
• Prerequisites

ENGL 452: The Victorians (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Poets such as Tennyson, Browning, Arnold, and Hopkins; also prose by writers such as Carlyle, Mill, Ruskin, and Arnold.
Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)
apply these offerings to their upperlevel British literature requirement.

Focused studies under a British literature umbrella will allow majors to larger School-wide themes in a classroom environment. Offering such focused studies under a British literature umbrella will allow majors to apply these offerings to their upperlevel British literature requirement.

ENGL 453: Victorian Novel (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

Study of texts and traditions in the nineteenth-century English novel.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Prerequisites

ENGL 454: Modern British and Irish Drama (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

From Wilde and Shaw to the present season. ENGL 454 Modern British and Irish Drama (3)(BA) This course meets the Bachelor of Arts degree requirements. ENGL 454 will introduce students to some of the most exciting playwrights and important trends in modern British and Irish drama from the late nineteenth century to the present. The course will examine a number of plays, exploring not only how they work formally, but also how changing cultural and historical contexts helped to shape the plays and British and Irish drama more generally. Authors under consideration will vary from class to class, but may include writers such as Oscar Wilde, George Bernard Shaw, John Synge, Lady Gregory, William Butler Yeats, Sean O'Casey, Samuel Becket, Denis Johnston, Brendan Behan, Brian Friel, Tom Murphy, Martin McDonagh, Noel Coward, John Osborne, T. S. Eliot, Robert Bolt, Harold Pinter, Caryl Churchill, and Tom Stoppard. The course will explore such topics as the role of drama in the Irish Revival, nationalism, and the revolution, the use of myth and folklore in drama, the emergence of realism, the function of Wilde and Shaw’s humor in their plays, drama’s response to the decline of the British empire, the modernist verse drama, post-modernism in drama, issues of stagecraft and performance, and the political function of such theaters as the Abbey Theatre or the Field Day Company. Students will write at least two papers on particular plays, and can expect to take a mid-term exam and a final exam. The course may be used as English Major elective credit or as credit towards the English minor, and will be offered once a year with 40 seats per offering.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Prerequisites

ENGL 455: Topics in British Literature (3-3 Credits: Maximum of 99 Credits) (BA)
Old Listing Effective Through Summer 2022:

Focused study of a particular genre, theme, or problem in British literature. (May be repeated for credit.) ENGL 455 Topics in British Literature (3)(BA) This course meets the Bachelor of Arts degree requirements. This course will allow faculty and students to focus a semester’s study on a particular genre, theme, or problem in British literature. The flexibility of a topics course will allow faculty a forum in which to share current scholarship or to relate issues in British literature to larger School-wide themes in a classroom environment. Offering such focused studies under a British literature umbrella will allow majors to apply these offerings to their upperlevel British literature requirement.

Because of the potential variety of topics and faculty members, specific evaluation methods will be determined by the instructor and specified in the syllabus. This course will be offered once every two years, with an expected enrollment of 20-25 students.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Prerequisites

ENGL 456: British Fiction, 1900-1945 (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

Study of writers and traditions in British short fiction and novels, 1900-1945.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Prerequisites

ENGL 457: British Fiction Since 1945 (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

Study of writers and traditions in British short fiction and novels, 1900-1945.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Prerequisites

ENGL 458: Twentieth-Century Poetry (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

Readings in British fiction since World War II.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Prerequisites

ENGL 460: Business and Literature (3-3 Credits: Maximum of 3 Credits)
Old Listing Effective Through Summer 2022:

An investigation into how writers and the cultures in which they write have represented business and those engaged in it. For many people, literature and business could not have less to do with each other. According to this view, literature escapes from reality to the imaginative, while nothing could be more focused on the real than business and its buying and selling of commodities and services. The problem is that no one told literary writers of this mutual incompatibility. For centuries, writers have peered into the world of business and brought back stories intended to document, inspire, and warn. True, writers have often, and
sometimes unthinkingly, condemned business and those who follow it, but they have just as often had genuine insights into its workings. In this course, we will follow the relationship between literature and business over the course of modern history. Although one version of the course would begin with literature that dates back to the invention of capitalism in (more or less) the sixteenth century, our course will begin at the turn of the nineteenth century with the Industrial Revolution in England and the United States and follow the literature of business up to the present. Our aim in reading is not just to understand how writers have represented business and those who pursue it, which, it has to be admitted, has often been with contempt. But, rather, in reading more sympathetic works, to understand the drama of business, why those who pursue it find it so invigorating. Money, of course, is one answer to that question, but it is neither the only nor the most important one. Texts may vary, but they are almost certain to include Charles Dickens’s Dombey and Son (1847); Herman Melville’s “Bartleby the Scrivener” (1853); the “Economy” chapter of Henry David Thoreau’s Walden (1854); Anthony Trollope’s The Way We Live Now (1875); Thorstein Veblen’s Theory of the Leisure Class (1899); George Bernard Shaw’s Major Barbara (1905); Theodore Dreiser’s The Financier (1912); Sinclair Lewis’s Babbitt (1922); Edwin Lefèvre’s Reminiscences of a Stock Operator (1922); James M. Cain’s hardboiled masterpiece Mildred Pierce (1941); F. Scott Fitzgerald’s unfinished novel The Love of the Last Tycoon (1941); Arthur Miller’s The Death of a Salesman (1949); Sloan Wilson’s The Man in the Gray Flannel Suit (1955); Ayn Rand’s Atlas Shrugged (1957); Ken Kesey’s Sometimes a Great Notion (1962); Joseph Heller’s Something Happened (1974); William Gaddis’s J R (1975); David Mamet’s Glengarry Glen Ross (1984); Michael Lewis’s Liar’s Poker (1987); and Richard Powers’ Gain (1990).

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Prerequisites

**ENGL 461: The Vernacular Roots of African American Literature (3 Credits) (BA)**

Old Listing Effective Through Summer 2022:

The relationship between oral tradition and literary texts and the double consciousness of African American voice in “print.”

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 015 or ENGL 030

Changes Effective Fall 2022:

- Prerequisites

**ENGL 462: Reading Black, Reading Feminist (3 Credits) (US) (BA)**

Old Listing Effective Through Summer 2022:

This course examines intersectional identity and its representations of gender, class, race, sexuality, and cultural difference in texts by black American women. The course also identifies analyzes major issues concerning the discovery and development of a black feminist tradition and the ways in which that tradition has engaged issues of racism, sexism, class exploitation, and/or heteronormativity.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Cross-Listed Courses: WMNST 462

Changes Effective Fall 2022:

- Prerequisites

**ENGL 464M: Honors Seminar in English: Multicultural (3-12 Credits: Maximum of 12 Credits) (H) (WF) (BA)**

Old Listing Effective Through Summer 2022:

This advanced Honors Seminar in multicultural literature, rhetoric, and cultural studies allows students to explore and research a topic related to race, gender, ethnicity, sexuality, queer theory, post-colonialism, disability, minority literature, women’s literature, world rhetorics, or other literatures reflecting the diversity of cultures and perspectives important to the English major. Topics will vary depending on the course instructor. Recent topics have included disability and literature, post-racial America, revolutionary writing, cognitive disability in literature, and early modern women authors. Department approval required (for more special information please refer to the notes section in LionPATH).

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Abbreviated Title
- Prerequisites

**ENGL 470: Rhetorical Theory and Practice (3 Credits) (BA)**

Old Listing Effective Through Summer 2022:

Application of certain rhetorical principles to problems in composition. Writing exercise. Designed as preparation for the teaching of composition.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

- Prerequisites

**ENGL 471: Rhetorical Traditions (3-3 Credits: Maximum of 6 Credits) (IL) (BA)**

Old Listing Effective Through Summer 2022:

(Course content may vary by instructor). This class will introduce you to communication theories developed in classical Greece and China. Economic globalization and the increased world travel have brought Americans into direct contact with East Asian peoples and their cultures. At the same time, individuals with an East Asian linguistic and cultural background are making a strong presence in the United States. The urgency to understand East Asian peoples-their cultures, their languages, and their ways of reasoning-is being felt by a majority of Americans. This class will focus on the rhetorical traditions that have grown out of classical Greece and China. We will not only read ancient and modern texts but also watch movies produced in China and the United States to
understand their philosophies, literatures, and communication arts. All readings are in English.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 472: Current Theories of Writing and Reading (3-3 Credits: Maximum of 6 Credits) (BA)
Old Listing Effective Through Summer 2022:

Investigates models of textual production and reception current within English studies. (Section subtitles may appear in the Schedule of Courses.)

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 473: Rhetorical Approaches to Discourse (3-3 Credits: Maximum of 6 Credits) (BA)
Old Listing Effective Through Summer 2022:

Practices the criticism of written texts from selected rhetorical perspectives. (Section subtitles may appear in the Schedule of Courses.)

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 474: Issues in Rhetoric and Composition (3-3 Credits: Maximum of 6 Credits) (BA)
Old Listing Effective Through Summer 2022:

Examines selected topics in the field of rhetoric and composition. (Section subtitles may appear in the Schedule of Courses.)

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 477: Teaching Children's Literature (3 Credits) (BA)
Old Listing Effective Through Summer 2022:

Teaching Children's Literature in light of recent literary pedagogy, the history of childhood, and critical approaches to Children's Literature. ENGL 477 Teaching Children's Literature (3) This course explores the teaching of Children's Literature. Beginning with students' own interpretations of the children's books we read, we develop critical concepts through which to understand and teach children's literature. The course presumes that books written for children have an intrinsic importance as literary and cultural artifacts and so demand serious consideration. Because this course is offered as an English course, we will concentrate on such things as the formal characteristics of the works we study, the kinds of audiences they seem to solicit, their implied authors, their ideologies, and so forth. The emphasis of the course is on teaching Children's Literature as literature; the course assumes that teaching literature is teaching reading and writing. Students are evaluated according to their participation in class discussion and three required papers one on the teaching of a particular work of Children's Literature, one on some aspect of the history of childhood, and one that analyzes a children's book.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

ENGL 478: Grant Writing (3 Credits)
Old Listing Effective Through Summer 2022:

Grants can do many things. Let's say you are a student who has always dreamed of combining help for food-insecure people with support for the mentally ill homeless. You've written papers about it for classes; you've read lots of research that points to past pitfalls and future innovative possibilities—but now you want to make it real by finding funding for the program you've envisioned. Or maybe you have your sights set on finding an existing non-profit foundation that might serve as a fiscal conduit for grants that will feed the cause you feel passionately about. These scenarios and many others call for finding and winning a grant. Here's what grants can't do: Write themselves. Given that writers of grants do not have one how-to professional manual to rely on, professional grant-seekers must learn to have flexible responses to a variety of writing situations. Every grant proposal is different, as is every organization hoping to help with the solution. A successful grant-writer achieves confidence with hands-on practice confidence earned from mastering the underlying principles of effective research and outreach; feasible and complete content generation; and the writing of precise, clear, audience-centered prose. English 478 will provide you with the basic knowledge and practice needed to get you on your way to professional confidence. Six Main
Learning Goals: * Comprehensive understanding of the grant-writing field * Strategic use of research skills to match program to foundation, need to grant-maker * Beginning mastery of all elements of the basic proposal, including: mission match, objectives that fill a proven need, evaluation strategies that reliably measure outcome, a feasible budget, and proof of capacity and sustainability * Practice of skills most needed in the current economic and political climate, including collaboration, diversified funding, and innovation within an established organization * Practical use of social media and cultivation skills for sustainability of project * Mastery of applied rhetorical style emphasizing clarity and precision.

Prerequisites: Enforced Prerequisite at Enrollment: [ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)] and (ENGL 202A or ENGL 202B or ENGL 202C or ENGL 202D)

Changes Effective Fall 2022:

• Prerequisites

**ENGL 480: Communication Design for Writers (3 Credits) (BA)**

Old Listing Effective Through Summer 2022:

This course explores visual design, non-verbal communication, and software packages used in professional settings to most effectively present written communications. ENGL 480 Communication Design for Writers (3) ENGL 480 is a course designed to familiarize students with an integrated theory of the roles that visual, verbal, and non-verbal communication play in the production of professional documents using the technologies and software applications most widely used in many organizational settings. To this end, the course will focus on employing non-verbal design elements (color, photographs, graphics, page layout, typography, paper) to develop effective communications tailored to a variety of media, audiences, and purposes using software packages such as Quark XPress, Photoshop, Illustrator, InDesign, and Final Cut Express. Emphasis will be placed on producing clear, insightful, polished, and professional documents, both individually and as part of a team. As part of the course, students can expect to a.) Understand the theories, elements, and principles of visual and non-verbal communication. b.) Appreciate the roles of the audience, purpose, and context in planning and composing documents. c.) Value the role of ethos, pathos, and logos when planning and composing documents. d.) Learn basic skills in a variety of software packages most widely used in the professional world. e.) Design and compose a variety of documents for a variety of audiences that display their writing and design skills. f.) Demonstrate through their documents an understanding of the theories of visual, verbal, and non-verbal communication. g.) Assess their own strengths and weaknesses as writers and designers. h.) Demonstrate the ability to reflect critically on their own and others’ discourse practices. i.) Gain an understanding of the role and scope of other professionals and other disciplines in creating professional communications.

Prerequisites: Enforced Prerequisite at Enrollment: [ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)] and (ENGL 202A or ENGL 202B or ENGL 202C or ENGL 202D) and 7th Semester standing or higher

Changes Effective Fall 2022:

• Prerequisites

**ENGL 481: Literary Theory: Historical Perspectives (3 Credits) (BA)**

Old Listing Effective Through Summer 2022:

Selected topics in the history of literary criticism and theory within the English-language tradition.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

**ENGL 482: Contemporary Literary Theory and Practice (3-3 Credits: Maximum of 6 Credits) (BA)**

Old Listing Effective Through Summer 2022:

Contemporary literary theories and their implication for critical practice as applied to British, American, and other English-language literary works.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

**ENGL 482W: Contemporary Literary and Cultural Theory (3 Credits) (WF) (BA)**

Old Listing Effective Through Summer 2022:

Contemporary literary and cultural theories and their implication for critical practice as applies to a variety of texts, e.g. literary, linguistic, visual, multimedia, and/or popular.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

**ENGL 483: Problems in Critical Theory and Practice (3 Credits) (BA)**

Old Listing Effective Through Summer 2022:

Intensive study of one or more recent theoretical approaches as applied to British, American, and other English-language literary works.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:

• Prerequisites

**ENGL 484: James Joyce (3 Credits)**

Old Listing Effective Through Summer 2022:

Analysis of principal works and their background.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:
ENGL 485: Australian and New Zealand Literature and Culture (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Questions of nationality, identity, gender, race, class, colonialism, and postcolonialism in these literatures.
Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:
• Prerequisites

ENGL 486: The World Novel in English (3 Credits) (IL) (BA)
Old Listing Effective Through Summer 2022:
Studies in the novel, written in English, by writers outside of the United States and Great Britain. ENGL 486 The World Novel in English (3) (IL) This course examines the nature of the novel as written in English by writers outside of the United States and Great Britain. Such a study necessarily involves both an aesthetic and a political perspective, in that the tradition of the novel in these landscapes so often involves the aesthetic and political suppression of native literary forms and voices. Thus, this course looks at the novel as written both by the colonizer and by the colonized. It considers the politics of the aboriginal author writing in an adopted language, and the ways in which such an adoption bears upon related ethnic and gender matters; it also considers the sorts of artistic and political tensions that emerge in the work of writers who write in what might be called the dominant English tradition. This course also studies the work of what might be called the multi-cultural writer, or the writer whose experience is placed within a larger, colonial, English-speaking culture. Matters of novelistic form, as they are related to ethnic and cultural identity, are also discussed. One intent of the course is to reveal the cultural, racial, and gender diversity that naturally adheres to these particular literary traditions.
Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Changes Effective Fall 2022:
• Prerequisites

ENGL 487: Australian and New Zealand Literature and Culture (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
This course treats the work of what might be called the multi-cultural writer, or the writer who writes upon related ethnic and gender matters; it also considers the sorts of artistic and political tensions that emerge in the work of writers who write in what might be called the dominant English tradition. This course also studies the work of what might be called the multi-cultural writer, or the writer whose experience is placed within a larger, colonial, English-speaking culture. Matters of novelistic form, as they are related to ethnic and cultural identity, are also discussed. One intent of the course is to reveal the cultural, racial, and gender diversity that naturally adheres to these particular literary traditions.

Changes Effective Fall 2022:
• Prerequisites

ENGL 488: Modern Continental Drama (3 Credits) (IL) (BA)
Old Listing Effective Through Summer 2022:
Study of major traditions and writers in European drama of the early to mid twentieth century.
Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)
Cross-Listed Courses: CMLIT 488

Changes Effective Fall 2022:
• Prerequisites

ENGL 490: Women Writers and Their Worlds (3 Credits) (US) (IL) (BA)
Old Listing Effective Through Summer 2022:
American and British literature written from the perspective of women. ENGL (WMNST) 490 Women Writers and Their Worlds (3) (US,IL)(BA) This course meets the Bachelor of Arts degree requirements. ENGL/WMNST 490 covers particular aspects of American and British literature written from the perspective of women. The course stresses the diversity of women's authorial worlds, both through time and/or space. The readings and specific focus vary from semester to semester. ENGL/WMNST 490 seeks to make students aware of the extensive body of literature written by women, but, unlike ENGL 194, which is a survey course of women's literature, ENGL/WMNST 490 can be a more intensive course, focusing on selected themes and topics of particular concern to women as reflected in the poetry and fiction of twentieth-century American and British women writers. The class can also be taught in relationship to earlier periods, dealing, for instance, with English women novelists from 1775-1865. In such a class, readings would include fiction by Fanny Burney, Mary Wollstonecraft, Ann Radcliffe, Jane Austen, Mary Shelly, Emily Bronte, Elizabeth Gaskell, and George Eliot. The course would then place each novel in its historical, social, intellectual, and literary context, and explore the various ways in which some of England's best writers transformed their female experience of the world into fiction that extended the range and influenced the development of the novel. Regardless of the particular focus, all sections of the course pose the following questions throughout: Do women use the same myths, archetypes, and literary conventions as male writers? Or do they sometimes have to modify the myths, archetypes, and literary conventions originated by their male precursors in order to adapt them to female experience? Is there such a thing as a distinctively female imagination, with a symbolic language of its own? Is there such a thing as a chain of literary influence linking women writers to each other? What are the strategies for coping with the anxieties of authorship? What is the interaction between gender and genre? In what ways are creativity and procreativity modes of defying prevailing ideologies? Does a woman's psychological development have an effect on the plots a woman novelist conceives? How does women's literature reflect the realities of women's lives? As a course in women's literature, ENGL/WMNST 490 concerns itself with questions of gender. In so far as some of these women writers are black or women of color, it concerns itself with questions of race and ethnicity. In as far as the course looks at women's literature in the context of men's literature, it is concerned with the inter-relationship between dominant (male) and non-dominant (female) culture in the United States as well as in Britain. In so far as the course covers lesbian writers, it is concerned with sexual orientation. Students should expect to complete a minimum of three written assignments in the course, two course papers, and an essay final exam in class. The papers each will ask students to choose a text to analyze in relationship to one of the thematic modules the course has chosen, for instance, to discuss how Virginia Woolf's Mrs. Dalloway analyzes the position of upper-middle class women in a particular moment in history when women had achieved the vote, but were still largely constrained by patriarchal social norms. In addition to written assignments, students will be evaluated on class discussion and general participation. The course not only prepares students for taking up literary and cultural analysis in English classes, but also in any other class that engages in the verbal and written analysis of complex written texts, and in other classes in Women's Studies or in other Penn State departments that address the social, cultural, or ethical issues of gender. The course may be used as English Major elective credit or as credit
towards the English Minor; it may also be used in the Women's Studies major and minor. It will be offered once a year with 40 seats per offering.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Cross-Listed Courses: WMNST 490

Changes Effective Fall 2022:
• Prerequisites

ENGL 491: The Capstone Course in Professional Writing (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
This culminating course for Professional Writing majors concentrates on reflective analyses, design, and presentation of documents in the development of professional portfolios.

Prerequisites: Enforced Prerequisite at Enrollment: [ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)] and (ENGL 202A or ENGL 202B or ENGL 202C or ENGL 202D) and 7th Semester standing or higher AND enrollment in the PWRT_BA major.

Changes Effective Fall 2022:
• Prerequisites

ENGL 492: American Women Writers (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
A study of selected American women writers. ENGL 492 / AMST 476 / WMNST 491 American Women Writers (3) A study of selected women writers, this course provides the opportunity to study writing by American women from an historical perspective and to explore the views these women have of themselves as artists. The course will concentrate on a careful reading of works by a variety of authors. It will raise the question of the role that gender—as well as other differences such as race, class, and ethnicity—play in the selection of literary forms and the development of character, theme, symbol, and rhetorical strategy. It will also explore the dimensions American women have brought to the American literary tradition. The course satisfies the area requirement in culture for American Studies majors and is open to all majors meeting the prerequisite requirements. The course will be offered once every two years and enrollment is 25.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Cross-Listed Courses: AMST 476 WMNST 491

Changes Effective Fall 2022:
• Prerequisites

ENT 313: Introduction to Entomology (2-2 Credits: Maximum of 2 Credits)
Old Listing Effective Through Summer 2022:
This course is an introduction to entomology addressing issues of insect diversity, morphology and physiology, and identification of the most common groups of adult and immature insects. This course will highlight the beneficial and detrimental roles insects in human society along with responsible methods of pest management. Other topics such as insects as vectors of disease and the ecological and agricultural impact of exotic insect species introduction and climate change will be discussed.

Prerequisites: AGECO 144; AGECO 121; ANSC 10; ANSC 300; ANTH 21; ANTH 216N; ANTH 218; ANTH 250; ANTH 271; 3 credits of BIOL; BISC 1; BISC 2; BISC 3; 3 credits of CHEM; ENT 202; ENT 216N; ENT 222; ERM 210; FOR 201; FRNSC 100; HORT 101; HORT 150N

Changes Effective Fall 2022:
• Prerequisites

HM 435: Financial Management in Hospitality Operations (3 Credits)
Old Listing Effective Through Summer 2022:
HM 435 is an introductory financial management course for the hospitality management major. The course will teach students fundamental knowledge of financial management concepts. This course will introduce a wide range of essential concepts that students can utilize to improve their decision-making and value creation abilities. The course introduces financial management concepts with a focus on practical application, both in professional and personal lives. Students' ability to learn these concepts will be tested through group and individual assignments. This course focuses on conceptual and analytical knowledge and skills. Practical knowledge will also be reinforced through in-class discussions, and periodic readings that focus on current issues in finance and hospitality.

Prerequisites: Enforced Prerequisite at Enrollment: ECON 102 and a grade of C or better in HM 336

Changes Effective Fall 2022:
• Title
• Abbreviated Title
• Description
• Prerequisites

IE 428: Metal Casting (3 Credits)
Old Listing Effective Through Summer 2022:
Application of engineering principles to the design of castings; casting of ferrous and nonferrous alloys; laboratory and simulation projects.

Prerequisite: IE 311, IE 312, or METAL 408W

Changes Effective Fall 2022:
• Description
• Prerequisites

KINES 495B: Field and/or Research Practicum in Kinesiology (6 Credits)
Old Listing Effective Through Summer 2022:
This course places students in the workplaces or research settings with the expectation that these experiences will allow them the opportunity to apply and integrate content from all their courses in the program. They will be placed at a variety of sites, including but not limited to research laboratories, professional fitness centers, rehabilitation facilities, senior centers, community health and wellness programs, and hospitals. They will learn the day-to-day requirements of being "on the job" or "in the lab,"
including professional management practices and ethical considerations. Practicum work will be evaluated on an ongoing basis with the student intern, work place supervisor, and faculty member involved in the process. The course will take place off campus as work sites and no special on-campus facilities are required. It will be offered annually as the last course in the major.

Prerequisite: Enforced Prerequisite at Enrollment: KINES 395B and KINES 395 and seventh-semester standing and 9 credits of 400-level KINES courses and 2.00 cumulative GPA

Changes Effective Fall 2022:
• Abbreviated Title
• Description
• Prerequisites

LARCH 116: Design II: Spatial Design (3 Credits)
Old Listing Effective Through Summer 2022:

Landscape Architecture Studio 2 – the second design studio in the undergraduate Landscape Architecture curriculum – introduces students to small-scale site design. Students are introduced to essential topics in site design: the importance of understanding and responding to site and program, the fundamentals of pedestrian and vehicular circulation, the necessity of designing within a broader social and natural landscape context, and creating refinement in design form. Students are introduced to fundamental concepts through lectures and readings then presented with design projects intended to provide immediate application of those concepts. At the end of each design project, students develop presentation graphics that explain their final designs and supporting information.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 115 and LARCH 155 Enforced Concurrent at Enrollment: LARCH 156

Changes Effective Fall 2022:
• Prerequisite/Concurrent

LARCH 156: Skills Lab II: Hand & Digital Graphics (2 Credits)
Old Listing Effective Through Summer 2022:

Landscape Architecture Skills Lab 2 is the skills lab that runs concurrently with the second design studio in the undergraduate Landscape Architecture curriculum. This skills lab will develop students at the intermediate level of visual communication in landscape architecture with a primary focus on 2D and 3D raster and vector drawing. Spatial design composition is developed through experiencing a variety of approaches to visual communication. Students explore design ideas through sketching in plan, section and perspective and by modeling their ideas in three dimensions.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 155 and LARCH 115 Enforced Concurrent at Enrollment: LARCH 116

Changes Effective Fall 2022:
• Prerequisite/Concurrent

LARCH 215: Design III: Site Design (4 Credits)
Old Listing Effective Through Summer 2022:

Landscape Architecture Studio 3 – the third design studio in the undergraduate Landscape Architecture curriculum – follows LARCH 116 (Spatial Design) and further explores site design through expanded complexity of site and program. Students are presented with design projects that include more extensive and complex programs and a broader range of site scales, existing conditions and contexts. Projects also expand the extent and complexity of pedestrian and vehicular circulation. These expanded site and program considerations require students to consider a broader range of design responses while building skill in site design. Throughout the semester, students will continue to develop skills in graphic representation and visualization to explore design ideas and develop presentation graphics. Students are expected to draw upon visualization skills developed in the concurrent LARCH 255.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 116 and LARCH 156 Enforced Concurrent at Enrollment: LARCH 255

Changes Effective Fall 2022:
• Prerequisites/Concurrent

LARCH 216: Design IV: Expanded Use, Scale, and Context (4 Credits)
Old Listing Effective Through Summer 2022:

Landscape Architecture Studio 4 – the fourth studio in the undergraduate Landscape Architecture curriculum – follows LARCH 215 and introduces students to the broader perspective of landscapes as expressions of cultural and natural processes. Theories, methods, and tools for effectively studying and analyzing larger scale landscapes will be explored through readings and studio assignments. Students will be presented with landscapes in different geographic contexts and develop skills in conducting landscape research and analysis and using appropriate tools and techniques for effectively exploring alternative land use scenarios. In support of the expanded complexity of working at a larger scale, students are expected to draw upon their knowledge of ecology and ecosystems from previous coursework (LArch 145 and 245).

Students will also draw upon precedent studies they may have conducted in landscape architecture history (LArch 060) and previous design studio courses. Students enrolled in LArch 216 will be concurrently enrolled in the associated skills course (LArch 256) that will develop their knowledge and skills with the tools of landscape planning, specifically geographic information systems (GIS). In addition, students will continue to develop skills in graphic representation and written and oral communication as a means to disseminate their planning and design proposals for review and discussion.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 145 and LARCH 215 and LARCH 255. Enforced Concurrent at Enrollment: LARCH 256

Changes Effective Fall 2022:
• Prerequisites/Concurrent

LARCH 235: Design Implementation I: Grading (3 Credits)
Old Listing Effective Through Summer 2022:

Introduction of basic principles and tools supporting landform data, site systems, grading, visualization representation and site circulation. LARCH 235 Design Implementation I: Grading (2) As an introductory design implementation course, this course provides the foundation for site design in landscape architecture. At the core of the course are four general bodies of knowledge: Geometrics, Landform Manipulation, Site Systems, and Computer Applications for Site Analysis and Design.

Geometrics: In order to perform landform manipulation, students must
be able to efficiently acquire and process basic physical information about a site and are required to understand a suite of measurements. This course will first provide an overview of the digital and paper data sources available to landscape architects. Students will develop basic skills in manipulating or processing these data in order to comply with the requirements of site design. The course will also provide the basic measurements and formulae required for students to efficiently and accurately manipulate landforms. Landform Manipulation: One of the most critical skills landscape architects must acquire as designers is the ability to design landforms to accommodate changes in use and to translate their design ideas into dimensionally precise topographic representations of their designs. This course provides the basic knowledge for students to complete this process. Beginning with a single site element, students are expected to explore the suite of opportunities to place and modify a site to fit a single site element. Increased complexity is added to the suite throughout the remaining portions of the semester, thus enabling students to balance the opportunities and constraints presented by each individual design element and the overall site design. Site Systems: Building on ecological components of the curriculum, this course provides the first site specific and physical understanding of basic site systems critical to every landscape architect’s design. Students will primarily focus on the major site features as related to site drainage, such as soil, topography, and surface geology, but will also be expected to recognize regional context in their designs. Computer Applications for Site Analysis and Design: A central component underlying the instruction of the course is providing students with a suite of computer tools. Course objectives: a) To assist in initial efforts in acquiring and processing site data; b) To perform calculations such as cut and fill, spot elevations, and slope calculations; c) To visualize and complete basic manipulation of landforms; d) To understand the interaction of physical site features on individual sites (e.g., soil and topography); and e) To communicate their final site designs according to professional standards.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 116 and LARCH 156 Enforced Concurrent at Enrollment: LARCH 215 and LARCH 255

Changes Effective Fall 2022:

- Prerequisites/Concurrent

LARCH 236: Design Implementation II: Materials (3 Credits)
Old Listing Effective Through Summer 2022:

The landscape architect calls upon a rich array of materials to construct the built elements of landscape: walls, ground surfaces, overhead structures and furniture systems. The functional success and durability of many historical and traditional construction methods is based on a learned appreciation of the qualities and behaviors of materials in use in the landscape. Students develop understanding of the fundamental structural qualities of materials and use that knowledge to devise and illustrate their own design details. The same understanding of material behaviors will be used to investigate the qualities of novel construction materials, and will guide the development of construction details that respond to new constraints and opportunities. The main focus of 236 will be on materials and construction detailing, with emphasis on techniques appropriate for an array of design situations. Representation of design ideas using computer-aided-drafting is expected in this class.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 235 and LARCH 336

Changes Effective Fall 2022:

- Prerequisites

LARCH 245: Ecology & Plants II (3 Credits)
Old Listing Effective Through Summer 2022:

This course applies knowledge gained in LARCH 145 by emphasizing planning and design based upon a systems approach to plants, soil and water. The course consists of lectures, campus walks, guest lectures and one day-long field trip to a public garden. The lectures and campus walks focus upon the identification of native plants in the landscape. Guest lectures cover additional, related topics. Students learn about specific native plants and plant communities as the basis for ecological planting design in reference to the ways these plants adapt to local climate, soil and hydrologic regimes. The use of native plant communities in planting design as practiced in this course also promotes the conservation and restoration of biodiversity and the promotion of human wellbeing. It can minimize the use of fertilizer, irrigation, and costly maintenance regimes. Students are also introduced to landscapes that have been shaped by the interactions between people and their environment. The use of native plant communities can be part of the preservation and re-creation important vernacular and historic cultural landscapes. Native plant communities express the identity and beauty of place. A primary goal of the course is to develop students’ understanding of the values and uses of native plant communities toward achieving sustainable solutions to the problems of environmental degradation, resource scarcity and global climate change. Course assignments are linked directly to this goal by providing students with experience in designing landscapes where natural processes can function effectively.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 145

Changes Effective Fall 2022:

- Prerequisites

LARCH 246: Ridge & Valley in the Field (1 Credit)
Old Listing Effective Through Summer 2022:

LARCH 246 Ridge & Valley Field Study explores the intrinsic links between landform, geophysical and biological processes, vegetation communities, and human manipulation of the landscape through time. It comprises a series of four one-day trips to select locations across our local Ridge & Valley landform region (Appalachian Mountain section), providing the opportunity to examine phenomena at the site level, particularly plants, soils, and landscape contexts. The field experience is immediately preceded by a few skills-building preparatory activities (e.g. workshop(s), test) to establish basic competencies and fore-knowledge. An essential tenet of the course is that layered and interconnected landscape systems learning is something all landscape architects should pursue in their region of practice. Every place possesses a particular relationship between the underlying geology, climate, hydrology, landform, soils, and the plants and animals that inhabit it. Understanding this relationship and learning how to analyze and interpret landscapes is important to all spatial design work as a source of essential information and as a source of design inspiration. The Ridge & Valley region contains an especially clear, distinct and “readable” relationship between the geophysical and the biological-between the geological underpinnings and the plants and animals that inhabit the surface. This makes the Ridge & Valley an outstanding context to learn how to observe these important, sometimes subtle, relationships. Once students understand what to look for and how to observe a landscape, they can apply this method to any...
landscape in the world. The conditions change from place to place, but the method is transferable.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 145

Changes Effective Fall 2022:

• Prerequisites

LARCH 255: Skills Lab III: Digital Graphics (2 Credits)
Old Listing Effective Through Summer 2022:

Landscape Architecture Skills Lab 3 is the skills lab that runs concurrently with the third design studio in the undergraduate Landscape Architecture curriculum. This skills lab will develop students at the advanced level of visual communication in landscape architecture with a primary focus on 2D and 3D raster and vector drawing. Spatial design composition is developed through experiencing a variety of approaches to visual communication. Students explore design ideas through sketching in plan, section and perspective and by modeling their ideas in three dimensions.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 116 and LARCH 156 Enforced Concurrent at Enrollment: LARCH 215

Changes Effective Fall 2022:

• Prerequisites
• Concurrent

LARCH 256: Skills Lab IV: GIS (2 Credits)
Old Listing Effective Through Summer 2022:

Landscape Architecture Skills Lab 4 is the skills lab that runs concurrently with the fourth design studio in the undergraduate Landscape Architecture curriculum. This skills lab will introduce geographic information system (GIS) as a primary tool in regional analysis and planning. The students will learn to integrate GIS into a broadly-based approach to managing data, developing concepts, and communicating ideas.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 215 and LARCH 256 Enforced concurrent at Enrollment: LARCH 216

Changes Effective Fall 2022:

• Prerequisites
• Concurrent

LARCH 276: Human Dimensions of Design: History & Theory (3 Credits)
Old Listing Effective Through Summer 2022:

The human dimensions of placemaking must consider the types of places people populate. New to civilization, the 21st century has been characterized as the urban century. More people live in urban areas than in rural areas, and this trend is expected to continue especially in Asia and Africa. This course will primarily focus on examining social and cultural issues in landscape architecture and planning. The course will explore rural, urban, and extra-urban sites, the inclusivity and exclusivity of American spaces, and issues of gender and diversity of landscapes. The course will balance lectures, readings, and student presentations. Students will be introduced to methods to identify socio-cultural issues in landscape design, planning, and placemaking.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 60

Changes Effective Fall 2022:

• Prerequisites

LARCH 315: Design V: Expanded Use, Scale, and Context (4 Credits)
Old Listing Effective Through Summer 2022:

Landscape Architecture Design Studio V – the fifth design studio in the undergraduate Landscape Architecture curriculum – follows LARCH 216 and introduces community and spatial design that accommodates civic and public functions while addressing social and environmental imperatives. It also expands on site design and program that creatively reconciles community-based (i.e. residential and/or public space) agendas. In support of focused explorations of community-oriented design, students are expected to draw on their knowledge of regional and landscape systems from LARCH 216, as well as site design in LARCH 215. In designing public spaces that lie at the heart of thriving communities, students are also expected to draw on technical skills in grading, materials, and planting acquired the implementation sequence. Throughout the semester, students will continue to develop skills in graphic representation and visualization to explore design ideas and develop presentation graphics. Students are expected to draw upon visualization skills developed through the skills lab sequence.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 216 and LARCH 256

Changes Effective Fall 2022:

• Prerequisites

LARCH 335: Design Implementation III: Planting Methods (3 Credits)
Old Listing Effective Through Summer 2022:

The third of four courses in the landscape architecture implementation sequence, this course addresses the applied principles, tools and techniques of planting design implementation, with a focus on landscape planting methods and technically proficient documentation. It relies on students having achieved foundational planting knowledge and abilities in prior design studios and prerequisite courses. Proceeding briskly through site and contextual analysis and conceptual design, we will concentrate on methodical design development, investigation of planting implementation and management methods, and preparation of planting contract documentation. Upon completion of the course, students will have achieved proficiency in planting design implementation as integral to the overall design process and vital to realizing goals for landscape performance, aesthetics, site functionality, and broader social and environmental values.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 216 and LARCH 235 and LARCH 256

Changes Effective Fall 2022:

• Prerequisites

LARCH 336: Design Implementation IV: Stormwater (3 Credits)
Old Listing Effective Through Summer 2022:

This course is the fourth of four studio courses in the implementation sequence, all of which focus upon the more technical aspects of landscape architectural practice. By means of lectures, studio problems, assigned readings, and computer courseware, LArch 336 will present the principles and techniques of: Advanced Landform Design and Site
Grading: integration of landform and structure through iterative grading design process; water flow and surface drainage. Site Systems and Stewardship — soil, water, and vegetation interactions and ecology; site protection; site systems management; environmental responsibilities and stewardship. Hydrology and Stormwater Management — basic site hydrology; overview of hydrology and stormwater management concepts, infiltration; surface runoff calculations, surface and subsurface drainage systems design. Production of technical drawings using computer-aided-drafting is expected in this class.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 235

Changes Effective Fall 2022:

- Prerequisites

LARCH 386: Professional Practice (3 Credits)

Old Listing Effective Through Summer 2022:

An investigation of current professional and business practices in the field of landscape architecture. For Landscape Architecture majors only. LARCH 386 Professional Practice (3) LARCH 386 has a three-part role. It comprises an introduction to the variety of practice opportunities in landscape architecture, their opportunities and drawbacks; it provides an introduction to critical office management practices; and it assists students in the employment application process through coaching on interview technique and guidance on the preparation of supporting material. It is the overarching intent of this course to help students understand what it will mean to be a professional practicing a constantly changing marketplace of ideas. Topics covered include ethics, public relations, office and project-related practices, personal and professional development, and legal aspects of practice: contracts, specifications, liability insurance. Through active participation in the course, students will come to realize the diversity inherent in the profession. Course objectives: — To introduce a range of practice types, including: small, private practice, large-scale corporate practice, federal and state agencies, not-for-profit organizations, and other non-governmental organizations; — To discuss relations with other professionals, including the formation of teams and other strategic alliances, and negotiation of professional fees; — To outline and illustrate the various roles and responsibilities individuals might have both in and outside of an office, including situations of personal vs corporate responsibility; and — To investigate the inherent values or point of view of principals and others that effect how decisions are made and change occurs.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 315

Changes Effective Fall 2022:

- Prerequisites

LARCH 414: Design and Theory V: Advanced Landscape Architectural Design (5-15 Credits: Maximum of 15 Credits)

Old Listing Effective Through Summer 2022:

Review of landscape architectural theories and issues; supports development of comprehensive design study and/or independent honors (Thesis-Based) design projects. LARCH Majors only. LARCH 414 Design and Theory V: Advanced Landscape Architectural Design (5-15) Fourth- and fifth-year design studios are designated ‘depth’ studios. Each studio is aligned with one of the department’s associated research centers or pursues special topical content and continues the development of site-scale planning and design skills for landscape architecture students with larger and more complex sites and programs. Students select a topic from the range of options. Students may choose to take a given topic on a maximum of two occasions. Topics are related to issues that have been introduced in previous studios and are as varied as possible from studio to studio. This allows students to select a topic of interest to explore with great intensity and detail. The studio alternatives offered each year are based on faculty expertise and student interest, and are chosen by the department head’s review of faculty proposals. To date, studio topics have ranged from historic preservation to recreational landscapes, urban ecology to community planning. The type of project is determined on an individual basis, and will be rigorous and require a high level of depth of thought and a sophisticated product. Project types include regional master planning, large scale site planning and medium-scale community/housing design. The design issues emphasize urban form, community identity and open-space systems in the United States as a follow-up to urban patterns experienced during the student’s previous study abroad. The project types may include such topics as inner-city locations with mixed-use and complex programs that progress from research and planning to site-scale design. Often, students work with an actual client, such as an urban planning commission or a city economic development entity, etc. Issues of urban form as a setting for significant practice opportunities are emphasized. Locations such as brown fields, urban entertainment districts, waterfronts, housing infill, etc., form the basis for design response in context. Course Objectives: - To develop an in-depth understanding of one or another aspect of landscape architecture. - To be exposed to the rigor and challenges of developing and implementing one’s own design expertise in the context of a specific environmental concern. - To exercise the design principles, technological tools and communication strategies developed during the course of the specific design studios.

Prerequisites: Enforced Prerequisite at Enrollment: LARCH 235 and LARCH 315 and LARCH 335

Changes Effective Fall 2022:

- Prerequisites

LARCH 424: Design Theory Seminar (3-3 Credits: Maximum of 9 Credits)

Old Listing Effective Through Summer 2022:

Inquiry-based reading and discussion of design theory literature relevant to contemporary landscape architecture issues. Topics vary each semester. LARCH 424 Design Theory Seminar (1-3) LARCH 424, Design Theory Seminar, is a companion to the depth studios, LARCH 414. However, unlike the seminars offered during second and third years, LARCH 424 is not tied topically to any particular depth studio. Instead, this seminar provides a vehicle for rigorous and structured exploration of the theoretical and philosophical issues that face landscape architectural designers and planners. The seminar is a small group setting where directed readings, independent research and reflection are employed to explore the context of contemporary design. These seminars, offered to fourth and fifth-year students, enable professors and students to take their investigations to greater depth. Seminars are offered by different professors each semester and the content is expected to be somewhat aligned with the faculty member’s research and scholarship or pursues special landscape architectural topical content of the faculty’s choosing. Students select seminars from the range of options offered. This allows students to select a topic of interest to explore with great intensity and detail. Students are required to take up to three seminars to achieve a minimum of three credits. Topics are related to issues that have been introduced in previous studios and seminars and the department ensures that students have access to the widest range of topics. The
negotiation. Further foundational study looks at the law applying to the
amendment, and the Railway Labor Act. Students will also develop concrete
processing; mediation; and arbitration, as practiced in industries in
collective bargaining (including its preparation phases); grievance
in the major phases of labor relations: union organizing campaigns;
and intellectual property. Students will get a preview of their role in
impact of public policy on design and planning. The type of seminar outcome is determined by instructors on an individual
and a sophisticated product. Course Objectives: • To further develop an
in-depth understanding of the theoretical or socio-political context for
The course examines the subjects and processes of collective bargaining
and the law of collective bargaining, grievance handling, and arbitration.
the main body of the course introduces students to different schools of
effective technique in the negotiation of labor disputes. Part 2 of the
course examines the subjects and processes of collective bargaining
in detail. In this portion of the course, the course requires small teams
of students to conduct out-of-class exercises. The first asks students
to resolve a dispute over bargaining unit determination. In this phase
of the course, teams of students negotiate a comprehensive new collective
bargaining agreement in a hypothetical (simulated) case study. Similarly,
students will conduct an exercise in the processing of grievances through
a grievance procedure and, in some case, ultimate arbitration. In the latter
procedure (arbitration), students will role-play in union representative,
management representative, and arbitrator roles, assigned to writing
either advocates’ briefs or an arbitration award. The course will also
include an exercise in the mediationconciliation of a labor dispute

Changes Effective Fall 2022:

• Prerequisites

LER 136: Race, Gender, and Employment (3 Credits) (US) (BA)
Old Listing Effective Through Summer 2022:

This course will ask how race and gender affect work in the contemporary
United States. We will consider how race and gender shape people’s
work opportunities, their wages at work, and whether they participate
in paid or unpaid labor (or both). We will begin with an overview of work
and the changes in the workforce over time; we will move to investigate
how workplace structures reproduce gender and race inequalities;
will ask how race and gender inequalities are informally maintained
through education systems and social networks; will consider differing
dimensions of inequality across poverty, immigration, and sexuality; and
will consider how studying unpaid labor helps us better understand the
formal paid economy.

Cross-Listed Courses: AFAM 136 WMNST 136

Changes Effective Fall 2022:

• Course Abbreviation
• GS Attribute
• Description

LER 434: Advanced Collective Bargaining and Contract Administration (3 Credits)
Old Listing Effective Through Summer 2022:

This course examines, at an advanced level, the theory, practice, and
impact of the major phases of union organizing, collective bargaining,
and contract administration. Upon completion of this course students
should be able describe, explain and participate, at an advanced level,
in the major phases of labor relations: union organizing campaigns;
collective bargaining (including its preparation phases); grievance
processing; mediation; and arbitration, as practiced in industries in the
U.S. private sector subject to the National Labor Relations Act, as
amended, and the Railway Labor Act. Students will also develop concrete
negotiation and grievance administration skills and have the opportunity
to apply those skills, with the benefit of observations and feedback.
Part I of the course reviews the structure of collective bargaining,
the determination of bargaining units, and theories of effective labor
negotiation. Further foundational study looks at the law applying to the
determination, compositions and scope of bargaining units, as well as
the law of collective bargaining, grievance handling, and arbitration.

Changes Effective Fall 2022:

• Prerequisites

MUSIC 395B: Cohort Practicum II (1-1 Credits: Maximum of 1 Credit) (BA)
Old Listing Effective Through Summer 2022:

Observation and teaching experiences in a variety of musical instruction
settings.

Prerequisites: MUSIC 341, MUSIC 395A, piano proficiency passed,
Concurrent: MUSIC 345

Changes Effective Fall 2022:
MUSIC 429: Aural Review for Graduate Students (1 Credit) (BA)
Old Listing Effective Through Summer 2022:

An intensive review of the aural skills required for a theoretical understanding of 18th- and 19th-century music.

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

Changes Effective Fall 2022:

• Prerequisites

MUSIC 442W: Emphasis in Secondary General Music (3 Credits) (WF) (BA)
Old Listing Effective Through Summer 2022:

Emphasis in teaching in secondary general music settings. MUSIC 442W Emphasis in Secondary General Music (3) MUSIC 442W is offered to students who have been accepted into the Teacher Certification program in Music Education. The focus of this course is to provide students with opportunity to explore secondary general music settings under the close supervision of a faculty member. Topics include: the design and implementation of curriculum in secondary general music, the leading and teaching of songs in these settings, and specific grade-level appropriate pedagogy. The instructional format includes: lecture, small group discussion, readings, musical and teaching examples, and off campus observation and teaching in middle and high school classrooms. Students complete several practical assignments including off campus observations, presentation of the summations of small group discussions, curriculum planning and models, and teaching within public schools in grades 5-12. This is a writing intensive course with focus on a detailed, multi-drafted topic paper relating to specific elements of teaching choral and general music at the secondary level.

Prerequisites: Limited to Music Education Majors. MUSIC 345, MUSIC 395B

Changes Effective Fall 2022:

• Prerequisites

MUSIC 444W: Emphasis in Elementary and Intermediate Band (3 Credits) (WF)
Old Listing Effective Through Summer 2022:

Examination and application of teaching strategies and materials for students planning to teach band in the elementary and middle schools. MUSIC 444W Capstone Experiences in Elementary and Intermediate Band (3)(BA) This course meets the Bachelor of Arts degree requirements. The course is intended to prepare pre-service teachers to teach beginning through intermediate instrumental (band) music. Preparation will include observation of current public school teachers and teaching techniques and methods, preparation and implementation of appropriate lessons including assessments, in-depth analysis (case study) of a student currently in the public schools, development of a written philosophy of music education and band instruction, and consideration of practical matters associated with teaching in the public schools such as scheduling, recruitment and parent interaction. The course serves as a capstone to the prior courses in the music education curriculum. Previous courses in instructional planning, instructional materials, instrument techniques, conducting piano and voice use will have developed necessary prior skills. Skills and concepts from these classes will be applied in this authentic context in the collegiate and public school classrooms. The students will be assessed according to their effectiveness in observation, teaching preparation, teaching and research. Evaluation will be in the form of written and verbal feedback, and completion of rubrics by the instructor and the students themselves (self- and peer-evaluation). Enrollment will likely be approximately 5 students each time the course is offered. The students will be spending considerable class time in local elementary and middle schools for field work.

Prerequisites: MUSIC 345, MUSIC 395A, MUSIC 366, piano proficiency passes

Changes Effective Fall 2022:

• Prerequisites

MUSIC 445W: Emphasis in High School Band (3 Credits) (WF)
Old Listing Effective Through Summer 2022:

Examination and application of teaching strategies and materials for students planning to teach high school bands. MUSIC 445W Capstone Experiences in High School Band (3) This course is intended to prepare pre-service teachers to teach high school band. Students will observe, analyze, and discuss the teaching techniques, methods, and materials used by public school teachers in high school band instructional settings. Students will prepare and implement rehearsal plans including assessments, in-depth investigation of appropriate repertoire for use in high school bands and concert programming. Students will develop score analysis skills necessary to plan and guide music making and learning in the band rehearsal. Students will develop materials and strategies that strengthen the connection of instrumental performance to the public school curriculum. Students will develop a written philosophy of music education and the role instrumental performance in band within the music education of high school students. Students will consider practical matters associated with teaching in the public schools such as: scheduling, interaction with parents/teachers/administrators, parental support organizations (music boosters), advocacy, community/school support, and long-range instrumental music program development plans.

Prerequisites: MUSIC 345, MUSIC 395B

Changes Effective Fall 2022:

• Prerequisites

NUTR 391: Professional Preparation in Nutrition and Dietetics (2 Credits)
Old Listing Effective Through Summer 2022:

This course provides students with an introduction to current issues in public health, the healthcare industry, professional practice and consumer trends that impact nutrition and health careers. Students will participate in activities during class to explore current topics in public health and issues related to improving access, quality of care and affordability in health care. Ethics scenarios will be presented and discussed that are relevant to nutrition and other healthcare practitioners. This course also prepares students to develop a set of professional skills necessary to initiate a career in the field of dietetics and their required field experience. This course is designed to help students increase self-awareness, become cognizant of strengths and weaknesses, and develop more effective communication skills. Students will use these skills to obtain and successfully complete an advanced field experience in nutrition (NUTR 495).
Changes Effective Fall 2022:

• Abbreviated Title
• Description
• Prerequisites

NUTR 495: Advanced Field Experience in Nutrition (3 Credits)
Old Listing Effective Through Summer 2022:

NUTR 495 is intended for students to earn academic credit through a supervised field experience in a dietetics or nutrition-related field. Students will complete 300 hours at a site agreed upon between the student, the field experience preceptor, and NUTR faculty member as a result of the Field Experience Proposal developed in NUTR 391. The primary focus of the field experience is both observational and participatory experiential learning accompanied by onsite supervision, as well as University-based instruction.

Prerequisites: Enforced Prerequisite at Enrollment: NUTR 391 and NUTR 360 Concurrent Courses: NUTR 358 and NUTR 391

Changes Effective Fall 2022:

• Abbreviated Title
• Description
• Prerequisites

OLEAD 410: Leadership in a Global Context (3 Credits) (IL) (BA)
Old Listing Effective Through Summer 2022:

This course explores the science and practice of leadership around the globe through pertinent scholarly literature and related instructional resources. OLEAD 410 Leadership in a Global Context (3) (IL)(BA)
This course meets the Bachelor of Arts degree requirements. This course will explore the science and practice of leadership across the globe. In particular, cross-cultural differences in leadership styles and methods from around the planet will be examined. Emphasis will be made on gaining knowledge of various cultural perspectives from around the world. That knowledge will then be used to examine successful leadership interactions between diverse cultures. Upon completion of Leadership in a Global Context, students will be able to understand differences within and between cultures, understand how diversity can impact an organization; recognize there are various sources of information to learn about culture; utilize various sources of information to gain knowledge of culture; develop the ability to recognize cultural differences in leadership situations, and think about developing leadership in global situations based on culture.

Prerequisite: OLEAD 100 and 6th semester standing

Changes Effective Fall 2022:

• Prerequisites

PHYS 250: Introductory Physics I (4 Credits) (BA) (GN)
Old Listing Effective Through Summer 2022:

PHYS 250 Introductory Physics I (4) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Algebra-based introduction to classical mechanics, including such topics as one- and two-dimensional motion, vectors, relative and circular motion, force and dynamics, Newton’s laws of motion, work and kinetic energy, potential energy and energy conservation, momentum, rotational motion and angular velocity, static equilibrium and properties of materials, static and moving fluids, vibrations, simple harmonic motion, general properties of waves, sound and human hearing, temperature and kinetic theory, heat and calorimetry, and the basic laws of thermodynamics. This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications to everyday phenomena and to the life sciences, to enhance their conceptual understanding of physical laws, and to increase their problem solving abilities especially as applied to physical systems. The mathematical prerequisites for this course (and the subsequent PHYS 251) are mathematics at the level of algebra and trigonometry, demonstrated by suitable coursework or demonstration of satisfactory performance on the mathematical proficiency exam. The exact model of course instruction varies at different campuses due to different resources and class sizes. Students attend several class meetings including at least one lab or activity period per week. Students perform laboratory experiments, discuss their results, and write up their conclusions in weekly lab reports. The course is a prerequisite for the second semester continuation, PHYS 251.

Prerequisites: Enforced Prerequisite at Enrollment: (MATH 22 and MATH 26) or MATH 40 or MATH 41 or MATH 81 or MATH 82 or satisfactory performance on the mathematics proficiency examination.

Changes Effective Fall 2022:

• Prerequisites

PHYS 251: Introductory Physics II (4 Credits) (BA)
Old Listing Effective Through Summer 2022:

Selected topics in light, electricity, and magnetism. PHYS 251 Introductory Physics II (4) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Algebra-based introduction to classical
electricity and magnetism, optics, and areas of modern physics, including such topics as electric charge and fields, electrical potential and energy, electric currents and resistance, direct current (DC) circuits, magnetism, electromagnetic induction and applications to devices, electromagnetic waves, light and geometrical optics, wave nature of light, basic optical instruments (microscopes, telescopes, etc.), basics of quantum mechanics, applications of quantum theory to atoms, molecules, and solids, nuclear physics and radioactivity, applications of nuclear energy and radiation. This course is designed to provide students with a working knowledge of the elementary physics principles mentioned above, as well as their applications to everyday phenomena and to the life sciences, to enhance their conceptual understanding of physical laws, and to increase their problem solving abilities, especially as applied to physical systems. The mathematical prerequisites for this course (and the prerequisite PHYS 250) are mathematics at the level of algebra and trigonometry, demonstrated by suitable coursework or demonstration of satisfactory performance on the mathematical proficiency exam. The exact model of instruction varies at different campuses due to different resources and class sizes. Students attend several class meetings including at least one lab or activity period per week. Students perform laboratory experiments, discuss their results, and write up their conclusions in weekly lab reports. The course is a continuation of the first-semester course PHYS 250.

Prerequisites: Enforced Prerequisite at Enrollment: PHYS 250

Changes Effective Fall 2022:

- Prerequisites

PHYS 412: Solid State Physics I (3 Credits)

Old Listing Effective Through Summer 2022:

Crystal symmetry, X-ray structure analysis, lattice vibrations, thermal properties, free electron transport theory, elementary one electron quantum theory of solids.

Prerequisites: Enforced Prerequisite at Enrollment: MATH 230 or MATH 231 or Concurrent: PHYS 410

Changes Effective Fall 2022:

- Description
- Prerequisites
- Concurrent

PSYCH 244: Introduction to the Psychology of Human Factors Engineering (3 Credits)

Old Listing Effective Through Summer 2022:

Introductory course in engineering/human factors psychology, emphasizing the application of core psychological principles and research to designing products and systems. PSYCH 244 Introduction to the Psychology of Human Factors Engineering (3) Human Factors Psychology is an area of psychology where the overall focus is the scientific study of human behavior and how it can be applied to the use, design and development of products and systems. Students will learn basic principles of how people process information, perceive and interact with the world in various circumstances. They will learn how psychologists conduct research on human thought and behavior in an effort to measure peoples’ perceptions, attitudes, and behaviors. These basic principles will be illustrated and explored with a series of hands-on activities that relate the material to everyday life. Topics to be covered include: research design and methods, sensation and perception, memory and language, and social psychology. Psychological principles from these areas will be used to discuss ways to improve the safety of tools and systems, reduce human error and increase user satisfaction. Students will also gain a better understanding of the influence of stress and workload on human performance. A major topic will be ways to develop reliable and valid evaluation techniques for assessing performance, safety and ease of use of systems. In order to design effective systems, individual differences in age, gender and culture must be taken into account. People in different regions of the world have cultural differences that influence the way they perceive the world and process information. These individual differences will be addressed throughout the semester. Topics are presented through a combination of lectures, readings, demonstrations, and in-class activities. Active learning elements such as library/internet research, writing activities, and collaborative learning experiences will be applied. Evaluation is on the basis of content-based quizzes, objective exams, brief written reports of hands-on exercises, and collaborative assignments. A major goal of the course is to show how questions relating to proper use and design of tools, computers and other systems are addressed through empirical research. The course introduces students to theories, research, and procedures used in psychological research and practice. It also promotes students to think critically about how they can apply this knowledge to enhance their lives. After taking this course students should have more sophisticated knowledge of the relationship between the brain, our thought processes and behavior. They should be able to make more informed decisions about what makes a usable product as well gain a better appreciation of the science and profession of human factors psychology.

Changes Effective Fall 2022:

- Description

PT 395G: Physical Therapist Assistant–Practicum III (4 Credits)

Old Listing Effective Through Summer 2022:

P T 395G is the terminal clinical experience of the practice of physical therapist assistant skills under the direction and supervision of a licensed physical therapist and/or physical therapist/physical therapist assistant team culminating in entry level practice. Course expectations include, but are not limited to: understanding and adhering to the Standards of Ethical Conduct for the Physical Therapist Assistant and the Values-Based Behaviors for the Physical Therapist Assistant, demonstration of appropriate verbal, nonverbal and written communication, safe, effective and efficient implementation of therapeutic interventions and data collection with patients of varying complexities as outlined in the plan of care established by the physical therapist. Students will be expected to apply current knowledge, theory and clinical judgement to progress or modify patient treatment within the established plan of care. Essential skills for clinical practice will be emphasized in preparation for career entry into the current healthcare environment. This course includes both clinical experience and online learning activities that students will be expected to complete. Enrollment is limited to 2PTA major.

Prerequisites: Enforced Prerequisite at Enrollment: Grade of C or better in PT 395F

Changes Effective Fall 2022:

- Prerequisites

RUS 400: Senior Seminar in Russian Culture (3 Credits) (IL) (BA)

Old Listing Effective Through Summer 2022:

Senior seminar devoted to topics in Russian culture; conducted in Russian. RUS 400 Senior Seminar in Russian Culture (3) (IL)(BA) This
course meets the Bachelor of Arts degree requirements. RUS 400 will be the senior seminar for Russian majors. Building on linguistic and cultural material covered in the second and third levels of study toward the Russian major, it will add depth and sophistication to the students' understanding of basic concepts in Russian culture and improve their ability to discuss and write about these concepts in Russian. The materials for RUS 400 will be arranged chronologically and will cover the 'big themes' of Russian culture: e.g., the legacy of Kievan Rus, the cultural/historical preconditions for the 'Third Rome' theory, the rift between the people and the upper classes following Peter the Great, Westernizers versus Slavophiles, the Bolshevik Revolution, the Stalinist terror. Readings will be selected from a wide variety of genres and will reflect a diversity of linguistic styles: e.g., passages from the ancient chronicles, folk legends, memoirs and autobiography, letters, historical and literary texts. Some films will be used. Students will be evaluated on the basis of frequent quizzes and oral participation. In addition, each student will write a short research paper and present it in Russian to the class. These papers will help round out the presentation of central themes in Russian culture. Research papers might cover such topics as Andrey Rublev, religious sectarianism, peasant beliefs about nature, the biography of Lenin. Russian 400 will be a required course for both the B.A. and B.S. in Russian. Students must complete RUS 204, 214, and 304 prior to RUS 400.

Prerequisite: RUS 204, RUS 214, RUS 304

Changes Effective Fall 2022:

- Course Number to 420
- Description
- Prerequisites

RUS 401: Advanced Russian A (3 Credits)

Old Listing Effective Through Summer 2022:

Advanced Russian grammar, conversation, and composition. RUS 401 Advanced Russian A (3) RUS 401 is an advanced Russian language course that covers topics in grammar in the context of the spoken and written language. It is taught in Russian and serves as a complement to RUS 402. Emphasis will be placed on verbal aspect, reflexive and passive verbs, un-prefixed verbs of motion, relative pronouns, and participles. Classes will include group and individual oral presentations, analyses of written texts, and assignments using the internet to access recent oral and written materials in Russian that treat current events and illustrate particular linguistic usage. Students will also view one feature film.

Changes Effective Fall 2022:

- Credits
- Add BA and IL Attributes
- Long Title
- Description

SC 475N: Anatomy in Italy: Cadavers, Culture, and Science (3 Credits) (GH) (GN)

Old Listing Effective Through Summer 2022:

Anatomy is more than learning to name structures. Students will practice critical thinking and analytical skills, and develop key literacies while studying human cadavers and learning to predict a structure's function by observing its shape, texture, and tissues. Students will practice critical and integrative thinking while discussing the historical circumstances that gave rise to, supported, and sometimes hindered the development of anatomy as a science by synthesizing original arguments (written and oral) that explore the evolution of anatomic science within the context of Italian history, politics, and culture. Students will also study the ethics of acquiring cadavers within contemporary and renaissance contexts, identify individual graphics and historical sculptures that demonstrate anatomic understanding, and discuss their origins and implications for renaissance-era society. Students will also develop their communication skills: presenting original posters, leading class discussions, writing term papers, and creating webcasts as part of a service project. During spring break, students will travel with the instructors to Italy and study: anatomic wax specimens born through collaborations between anatomists and artists; Michelangelo's hidden anatomy in the Sistine Chapel; and the history of medicine. As preparation for their study abroad experience, students must concurrently enroll in IT 197: Italian Language and Culture for Study Abroad.

Prerequisite: Enforced Prerequisite at Enrollment: Consent of Instructor and BIOL 129 or BIOL 141 or BIOL 240w or BIOL 472 or KINES 202

Changes Effective Fall 2022:

- Prerequisites

SPLED 404: Working with Families and Professionals in Special Education (3 Credits)

Old Listing Effective Through Summer 2022:

Strategies for productive interactions between special educators and others such as colleagues, employers, parents, service providers, professionals, and students.

Prerequisite: A grade of C or better in SPLED 395W, SPLED 401, SPLED 425, SPLED 408, SPLED 411, SPLED 412, SPLED 454, SPLED 495E

Changes Effective Fall 2022:

- Prerequisites

SPLED 409A: Fundamental Literacy Skills for Students with Special Needs (3 Credits)

Old Listing Effective Through Summer 2022:

Effective reading curriculum and teaching methods to teach students with special needs. SPLED 409A Fundamental Literacy Skills for Students with Special Needs (3) Effective classroom-based assessment, curriculum development, and instructional strategies for teaching reading to educate students with special needs will be described in this course. Students will learn how to assess, develop curriculum, and provide scientifically based explicit instruction in reading to K-12 students with special needs. Students will learn how to select reading skills necessary to scaffold and enhance students' present reading skills. Methods for using science-based assessment strategies and developing foundational reading skills within a classroom context will be described. This course builds on prerequisite Special Education courses in curriculum and instructional methods. Students in SPLED 409A extend knowledge of explicit instructional strategies in the context of reading. The content offered in this course complements 409B and 409C through the integration of researched-based methods and sound instructional design within a curriculum to most effectively teach students with special needs.

Prerequisites: A grade of C or better in SPLED 404, SPLED 412, SPLED 411, SPLED 454, SPLED 495E
**SPLED 409B: Writing and Content Literacy for Students with Special Needs (3 Credits)**

Effective curriculum and materials for teaching writing and content literacy to students with special needs. SPLED 409B Writing and Content Literacy for Students with Special Needs (3) Effective application of classroom-based measurement, curriculum development, and instructional strategies for teaching writing and content literacy to educate students with special needs will be described in this course. Students will learn how to use assessment to develop a writing approach for teaching students with special needs. SPLED 409B will have achieved mastery in basic reading literacy, assessment, curriculum, and instructional methods. The content offered in this course adds to the existing course content by specifically addressing writing mechanics, written expression, and content reading. Written responses for assigned readings will be required for each topic area. Written evaluations and class assignments (including case studies) will be given to assess student learning throughout the course time period. Students’ learning will be further evaluated through projects that demonstrate understanding of classroom-based measurement, curriculum development, and instructional methods required to effectively teach content-area skills to students with special needs. Written responses and/or online discussion board posts for assigned readings will be required for the topic areas. Written evaluations, online quizzes, and class assignments will be given to assess student learning throughout the course time period. Students learning will be further evaluated through projects that demonstrate understanding of classroom-based measurement, curriculum development, and instructional methods required to effectively teach content-area skills to students with special needs. Written responses and/or online discussion board posts for assigned readings will be required for the topic areas. Written evaluations, online quizzes, and class assignments will be given to assess student learning throughout the course time period. Students learning will be further evaluated through projects that demonstrate understanding of classroom-based measurement, curriculum development, and instructional methods required to effectively teach content-area skills to students with special needs. Written responses and/or online discussion board posts for assigned readings will be required for the topic areas. Written evaluations, online quizzes, and class assignments will be given to assess student learning throughout the course time period. Students learning will be further evaluated through projects that demonstrate understanding of classroom-based measurement, curriculum development, and instructional methods required to effectively teach content-area skills to students with special needs. Written responses and/or online discussion board posts for assigned readings will be required for the topic areas.

**Prerequisites**

A grade of C or better in SPLED 401, SPLED 408, SPLED 412, SPLED 454, SPLE 495E

**COREQUISITES:** SPLED 409A, SPLED 409C, SPLED 495G, SPLED 418

Changes Effective Fall 2022:

- Prerequisites

**SPLED 409C: Mathematics Instruction for Students with Special Needs (3 Credits)**

Research-based practices for teaching mathematics skills to students with special needs. SPLED 409C Mathematics Instruction for Students with Special Needs (3) Research-based assessment, instruction, and intervention strategies for teaching mathematics skills to struggling students, students with learning disabilities, and chronically low performing students will be described in this course. Students will identify (a) the risk factors associated with mathematics disabilities, (b) effective prevention and remediation models of mathematics disabilities, (c) characteristics of scientifically based instruction in content-area skills (e.g., counting, addition, fractions, problem solving, geometry, algebra) for K-12 students with disabilities, and (d) how to effectively provide and assess the effects of such instruction while provided in general and special education classrooms. This course builds on prerequisite Special Education courses in curriculum and instructional methods. Students in SPLED 409C will have achieved mastery in assessment, curriculum, and instructional methods. The content offered in this course adds to the existing course content by specifically addressing how to teach content-area skills for students with special needs. Written responses and/or online discussion board posts for assigned readings will be required for the topic areas. Written evaluations, online quizzes, and class assignments will be given to assess student learning throughout the course time period. Students’ learning will be further evaluated through projects that demonstrate understanding of classroom-based assessment, curriculum development, and instructional methods required to effectively teach content-area mathematics skills to students with special needs. Student applied projects, in coordination with practicum placement, for mathematics instruction will include: (1) the collection of baseline mathematics performance data for a student with special needs, (2) development of a curriculum scope and sequence, (3) development of a research validated instructional intervention, (4) implementation of the intervention, (5) on-going data collection throughout instruction and after instruction, and (6) development and implementation of an instructional plan for maintenance and generalization. To demonstrate understandings of teaching content area mathematics skills, students will prepare a lesson on a math concept for a teaching demonstration using the instructional strategies and techniques learned during the class.

**Prerequisites**

A grade of C or better in SPLED 404, SPLED 411, SPLED 412, SPLED 454, SPLE 495E

**Corequisites:** SPLED 409A, SPLED 409B, SPED 495G, SPLED 418

Changes Effective Fall 2022:

- Prerequisites

**SPLED 411: Intervention for Students with Severe Disabilities (3 Credits)**

Assessment, teaching strategies, curricula, materials, and assistive techniques for use with individuals having severe disabilities.

**Prerequisites**

A grade of C or better in SPLED 395W, SPLED 401, SPLED 425, SPLED 408

**Corequisites:** SPLED 412, SPLED 454, SPLED 495E, SPLED 404
Changes Effective Fall 2022:

- Prerequisites

SPLED 418: Technologies for Persons with Disabilities (3 Credits)

Old Listing Effective Through Summer 2022:

This course will teach students the role of the special education teacher in supporting the use of assistive technology (AT) by individuals with disabilities in school and community settings. Students will learn the role of the special education teacher in the AT process, including (as appropriate) how to identify student AT needs, obtain information on common AT applications and devices, make first-hand use of current AT solutions, and evaluate the use of AT to address specific student needs. Students will also learn the legal responsibilities of the special education teacher in the AT procurement and implementation process. Particular attention will be given to the use of AT to assist students with disabilities in reading, writing, math, communication, and the development of social skills. Students will learn the role and responsibilities of the special education teacher on the AT team, as well as the roles and responsibilities of the other licensed professionals on the AT team.

Special attention will be given to the acquisition of strategies to engage and support the participation of family members in acquiring and implementing AT interventions. Students will also be provided with resources and strategies for making use of state and national information resources and services related to AT.

Prerequisites: A grade of C or better in SPLED 404, SPLED 411, SPLED 412, SPLED 454, SPLED 495E

Corequisites: SPLED 409A, SPLED 409B, SPLED 409C, SPLED 495G

Changes Effective Fall 2022:

- Prerequisites

SPLED 419: Assistive Technology for General Education Teachers (2-3 Credits)

Old Listing Effective Through Summer 2022:

Strategies to support use of assistive technologies by students with disabilities in general education classrooms. SPLED 419 Assistive Technology for General Education Teachers (2-3) This course will teach students the role of the general education teacher in supporting the use of assistive technology (AT) by students with disabilities in general education classrooms. Students will learn the role of the general education teacher in the AT process, including (as appropriate) how to identify student AT needs, obtain information on common AT applications and devices, make first-hand use of current AT solutions, and evaluate the use of AT to address specific student needs. Particular attention will be given to the use of AT to assist students with disabilities in reading, writing, math, communication, and the development of social skills. Students will learn the role and responsibilities of the general education teacher on the AT team, as well as issues of "scope of practice", and the roles and responsibilities of the other licensed professionals on the AT team. Students will also be provided with resources and strategies for making use of state and national information resources and services related to AT.

Prerequisite: Admission to the SPLED major

Changes Effective Fall 2022:

- Prerequisites

SPLED 495E: Experience with Exceptional Children (3 Credits)

Old Listing Effective Through Summer 2022:

Supervised and guided field experience in a variety of possible settings (e.g. schools, day care centers, vocational settings) where students will practice lesson design, deliver instruction, and develop appropriate instructional activities, while implementing behavior management.

Prerequisites: A grade of C or better in SPLED 395W, SPLED 401, SPLED 425, SPLED 408

Corequisites: SPLED 411, SPLED 412, SPLED 454, SPLED 404

Recommended Preparations: Clearances: Act 34, Act 152, FBI, Act 24 State and PSY Mandated Reporter, TB test

Changes Effective Fall 2022:

- Prerequisites

SPLED 495G: Experience with an Integrated Inclusion Classroom (3-4 Credits: Maximum of 4 Credits)

Old Listing Effective Through Summer 2022:

Supervised teaching in integrated general classrooms with activities in curriculum-based assessment, data-driven intervention, direct instruction with students in need.

Prerequisites: A grade of C or better in SPLED 404, SPLED 411, SPLED 412, SPLED 454, SPLED 495E

Corequisites: SPLED 409A, SPLED 409B, SPLED 409C, SPLED 418

Recommended Preparations: Clearances Act 34, Act 152, FBI, Act 24 State and PSY Mandated Reporter, TB test

Changes Effective Fall 2022:

- Credits
- Prerequisites

STAT 380: Data Science Through Statistical Reasoning and Computation (3 Credits)

Old Listing Effective Through Summer 2022:

A case study-based course in the use of computing and statistical reasoning to answer data-intensive questions. STAT 380 Data Science Through Statistical Reasoning and Computation (3) This course addresses the fact that real data are often messy by taking a holistic view of statistical analysis to answer questions of interest. Various case studies will lead students from the computationally intensive process of obtaining and cleaning data, through exploratory techniques, and finally to rudimentary inferential statistics. This process will exploit students’ exposure to introductory statistics as well as the R programming language - hence the required prerequisites- yet novel computing and analytical techniques will also be introduced throughout the course. For the collection of data, students will learn scripting and database querying skills; for their exploration, they will employ R capabilities for graphical and summary statistics; and for their analysis, they will build upon the basic concepts obtained in their introductory statistics course. The varied case studies will elucidate additional statistical topics such as identifying sources of bias and searching for high-dimensional outliers. A possible textbook for this course is Data Science in R: A Case Studies Approach to Computational Reasoning and Problem Solving (2015) by Deborah Nolan and Duncan Temple Lang.
Changes Effective Fall 2022:

• Prerequisites

THEA 4808: Technical Production IV (3 Credits) (BA)
Old Listing Effective Through Summer 2022:
Discussion of problems of the technical director: personnel management, time management, scheduling, budgeting, purchasing, and the technical drawing of production.
Prerequisite: THEA 381

Changes Effective Fall 2022:

• Prerequisites

Course Changes: Effective Spring 2023
AE 124: Architectural Engineering Orientation (1 Credit)
Old Listing Effective Through Fall 2022:
Introduction to architectural engineering; lectures and discussions with special reference to the relation of architectural engineering to the building industry. AE 124 Architectural Engineering Orientation (1) (FYS) This course is designed to help students decide whether they do or do not want to major in Architectural Engineering. It has four major goals. The first is to introduce the role of the architectural engineer in the building industry. The second is to introduce the concepts of integrated building systems design and construction management. The third is to familiarize students with the Architectural Engineering curriculum, department facilities, and faculty. The fourth and final goal is to develop an awareness of and interest in the periodic and publications related to buildings. This course will provide students with access to the regular faculty of the program, a feature that continues throughout the students’ 5 year career in Architectural Engineering. Students and faculty will be connected through discussion of topics related to the building industry and the areas that future A E students will be studying. Since this program operates under enrollment control, this course will address entrance to the major, the requirements placed on the freshman year, and the selection process. Additionally, special features of the program will be discussed, including option selection, which takes place after 3 years, the study abroad program at the University of Leeds, and the integrated graduate/undergraduate program. Depending upon the semester in which the course is taken, students will be provided with either an opportunity to participate in the annual AE Career Fair or the 5th year thesis presentations. Students will take field trips to buildings and construction sites on campus to reinforce the material learned in class. As a result of this class, all students should be better prepared to make a decision as to whether or not the wish to apply for this major at the end of their first year.

Changes Effective Spring 2023:

• Change Description

AE 202: Introduction to Architectural Engineering Concepts (3 Credits)
Old Listing Effective Through Fall 2022:
Introduction to profession of architectural engineering, building envelope systems, sustainable design, fire protection systems, and engineering economics. AE 202 Introduction to Architectural Engineering Concepts (3) As the first course after students are admitted into the major, AE 202 is designed to expose students to two aspects the profession: the interdisciplinary nature of architectural engineering and the concept of professional practice. Technical areas of focus chosen for this course are building envelope and fire protection. These disciplines of architectural engineering require students to efficiently understand the application of a number of disciplines in the creation of successful and integrated solutions. Students will learn to integrate architectural design and detailing, structural analysis and design, the influence of thermal science, construction processes and building codes in the proper execution of the design of specific building systems. Social and environmental responsibility will be introduced through the discussion of sustainable design. Understanding the Greed design concepts and the LEED certification system provides the practical basis for the students to put idealism to work. Early exposure to professional practice and engineering economics provides students with a framework of understanding to manage the relationships of the myriad of technical courses. This course is designed to provide students an appreciation that the practice of architectural engineering includes proper executions of business and management practices. Students will also learn to analyze design options based on economic factors. The course utilizes lectures, practicums, examinations, projects and presentations to deliver and reinforce the technical content. The course offers students opportunity to work in team settings and to present their work orally to their peers. The broad coverage of the technical and social issues and professional skills intentionally involves students early in their education to all the ABET educational outcomes. The projects present opportunities to engage students in discussion and application of social and ethical responsibilities. The course is open to architectural engineering students in the second year with an ENGAE standing. Students in other curricula may enroll in this course with prior approval of the program.

Changes Effective Spring 2023:

• Change Title
• Change Abbreviated Title
• Change Description

AE 211: Introduction to Environmental Control Systems (3 Credits)
Old Listing Effective Through Fall 2022:
Qualitative study of humans in macro- and micro-architectural environmental systems. This course is intended for Architecture students. AE 211 Introduction to Environmental Control Systems (3) introduces Architectural students to building thermal environmental and building mechanical issues. Thermal environmental issues include: thermal comfort, natural environmental impacts, heat transfer through the building envelop, heating and cooling design, noise and vibration of mechanical systems, and building energy consumption. Building mechanical system issues include: heating, ventilating and air-conditioning systems. Emphasis is placed on building design in response to the technical, environmental and societal challenges, with a focus on sustainable design principles and guidelines applied to mechanical systems. The course utilizes lectures, practicums, examinations, projects and presentations to deliver and reinforce the technical content. The course offers students opportunity to work in team setting and to present their work orally to their peers. The broad coverage of the technical and social issues and professional skills challenges the architecture students to incorporate technical issues as an integral part of the overall building design. The course is required for students enrolled in the undergraduate architecture program. The course is not available to architectural engineering students.
Changes Effective Spring 2023:

- Change Number
- Change Abbreviation
- Change Title
- Change Abbreviated Title
- Change Description

AE 221: Architectural Building Materials (3 Credits)
Old Listing Effective Through Fall 2022:

The structural and architectural use of building materials; commercial standardization, classification, and description as encountered in the building trades. AE 221 Architectural Building Materials (3) The course objective is for students to understand building materials and methods. It is taught using a combination of these methods, 1) job site visits to current construction projects on campus, 2) guest speakers from manufacturers, engineering firms, building code organizations, construction managers and contractors, 3) video series of building construction, and other various DVD's, 4) visits to local building suppliers and testing facilities, 5) bus trip to several manufacturing, fabrication, milling plants, 6) hands-on mock-ups of construction assemblies, and 7) actual material samples. This course prepares students for further study in the advanced architectural engineering courses. Student evaluation and individual grades are based on a combination of homework, projects, quizzes, attendance and a final cumulative exam. The major part of the final grade is from six (6) quizzes of which the lowest quiz grade is dropped. Special facilities consist of 1) the drafting room, where various drawings and specifications are utilized to understand materials, 2) the computer lab, where students have access to the internet, which provides them with information from manufacturers, suppliers and construction trade organizations, 3) the material samples room, where actual material samples and fasteners are examined and understood, 4) the hands-on mock-up room, where true size mock-ups are built by student groups and 5) the structures testing lab, where concrete beams, wood trusses, etc. built by the students are load tested to understand construction methods and failures.

Changes Effective Spring 2023:

- Change Title
- Change Description

AE 308: Introduction to Structural Analysis (4 Credits)
Old Listing Effective Through Fall 2022:

Algebraic and graphical methods of analysis of determinate members, deflections; introduction to indeterminate analysis methods. Course includes practicums. AE 308 Introduction to Structural Analysis (4) In this introductory course, students develop skills to perform analysis of structures, with emphasis on buildings and their structural elements. The objectives of this course are as follows: 1) to determine loads that the buildings/structural elements are likely to be subjected to during the lifetime of the building; 2) to discuss procedures used to determine reactions and internal forces in trusses, beams, and frames; 3) to introduce methods that can be used to calculate deflections. These objectives can be seen as three general steps that define structural analysis. Although the main emphasis in this course is the analysis of planar, statically determinate structures, an introduction to the analysis of indeterminate structures is also given. The course is required to be taken by all architectural engineering undergraduate students in the third year. A knowledge of statics and strength of materials is required and this course serves as prerequisite for steel and concrete design courses in the Architectural Engineering Program.

Changes Effective Spring 2023:

- Change Abbreviated Title
- Change Description

AE 310: Fundamentals of Heating, Ventilating, and Air Conditioning (3 Credits)
Old Listing Effective Through Fall 2022:

Fundamental principles and engineering procedures for the design of heating, ventilating, and air-conditioning systems, including energy utilization and constraints. AE 310 Fundamentals of Heating, Ventilating, and Air Conditioning (3) AE 310 explores the fundamentals of the heating, ventilating and air-conditioning (HVAC) systems that control environmental conditions inside buildings. HVAC systems have common basic components, although they may significantly differ in physical appearance and arrangement. The course considers a variety of HVAC systems and presents methods of analyzing air-conditioning processes. HVAC systems maintain not only an acceptable level of thermal comfort within conditioned spaces, but also a healthy environment. Hence, the conditions for a comfortable and healthy indoor environment, such as physiological considerations, environmental indices, and control of indoor air quality are defined. The design of a successful HVAC system requires an accurate estimate of the peak rate at which energy must be added to (heating load) or removed from (cooling load) a space. Therefore, the various types of heat transmission in buildings and methods for estimating them are discussed in order to prepare students to estimate buildings energy consumption and size HVAC systems properly. The target audience is Architectural Engineering students at a junior level who have taken AE 202 “Introduction to Environmental Systems in Buildings,” and ME 23 “Introduction to Thermal Science.”

Changes Effective Spring 2023:

- Change Description

AE 311: Fundamentals of Electrical and Illumination Systems for Building (3 Credits)
Old Listing Effective Through Fall 2022:

Fundamental principles, systems, and planning concepts for electrical and illumination systems in modern buildings.

Concurrent Courses: Enforced Concurrent at Enrollment: EE 211 and PHYS 212

Changes Effective Spring 2023:

- Change Description
- Change Prerequisite

AE 372: Introduction to the Building Industry (3 Credits)
Old Listing Effective Through Fall 2022:

Introduction to the building industry; owner, designer responsibilities; documents, bidding procedures; design-contract contracts; project management; insurance, labor relations.

Changes Effective Spring 2023:
• Change Title
• Change Abbreviated Title
• Change Description

AE 401: Design of Steel and Wood Structures for Buildings (3 Credits)
Old Listing Effective Through Fall 2022:

Application of principles of engineering mechanics to layout, analysis, design, and detailing of structural elements in steel and wood of simple buildings. AE 401 Design of Steel and Wood Structures for Buildings (3) AE 401 is a first course in structural steel and wood design taken by all undergraduate Architectural Engineering students in the 6th or 7th semester. It applies the principles of engineering mechanics to layout, analysis, design, and detailing of structural steel elements. The course covers the principles of structural design, structural safety, structural stability, steel as a material, methods of structural steel design, design of tension members, design of columns, design of beams (flexure, shear, deflection, bearing, web crippling, web yielding), combined stresses (beam columns), fasteners/connections. It also treats wood design, including material characteristics, beam design, column design, and fasteners. After completion of the course students will be able to design simple wood and steel structures.

Prerequisites: Enforced Prerequisite at Enrollment: AE 221 and AE 222 and AE 308

Changes Effective Spring 2023:

• Change Description

AE 402: Design of Concrete Structures for Buildings (3 Credits)
Old Listing Effective Through Fall 2022:

Application of principles of engineering mechanics to layout, analysis, design, and detailing of structural elements in concrete of simple buildings. AE 402 Design of Concrete Structures for Buildings (3) This course is designed to provide all Architectural Engineering students with an ability to analyze and design reinforced concrete and an understanding of the theoretical behavior of reinforced concrete members. The primary focus is on the analysis and design of one-way systems comprised of slabs, beams, and columns. Evaluation methods include, but are not limited to, exams and homework assignments. A prerequisite knowledge of structural analysis is necessary. It is a required course in the Architectural Engineering curriculum. Additionally, this course provides the necessary prerequisite knowledge for several upper level concrete courses in both Civil and Architectural Engineering.

Prerequisites: Enforced Prerequisite at Enrollment: AE 221 and AE 222 and AE 308

Changes Effective Spring 2023:

• Change Description

AE 403: Advanced Steel Design for Buildings (3 Credits)
Old Listing Effective Through Fall 2022:

Continuation of A.E, 401. Advanced analysis, design, and detail of the structural elements in wood and steel. AE 403 Advanced Steel Design for Buildings (3) AE 403 is designed for 4th year Architectural Engineering students in the structural option, to build on the design and analysis base developed in the first course in steel design. This course is intended to develop competency in analysis and design of multi-story steel buildings subjected to gravity, wind and earthquake loadings, including study of connections, framing systems, composite design and plastic design of steel members. The course prerequisites include determinate and indeterminate analysis and structural design of steel members. It will cover such topics as types of construction, the design process, loading and load cases, floor systems, floor vibration, moment rotation characteristics of connections, plastic analysis, multi-story frames, braced and unbraced frames, seismic design, leaning columns, drift, composite design and connections.

Prerequisites: Enforced Prerequisite at Enrollment: AE 401 and AE 430

Changes Effective Spring 2023:

• Change Description

AE 404: Building Structural Systems in Steel and Concrete (3 Credits)
Old Listing Effective Through Fall 2022:

Basic analysis, design, and detailing of steel and concrete structural elements for buildings, emphasizing systems design and comparisons. AE 404 is not permitted for AE Structural Option students or for Architecture students. AE 404 Building Structural Systems in Steel and Concrete (3) The course is designed for architectural engineering students in the Construction, Mechanical Systems and Lighting/Electrical options to gain an ability to design simple building members in steel and concrete using current professional standards, specifications and guidelines. Students will learn to combine these members into simple structural systems and compare the performance and load carrying characteristics of these systems. The course will also address general performance parameters of these materials, construction issues and key systems-integration issues for beams, columns, flooring and roofing systems, and lateral bracing systems constructed in steel and concrete. This course is considered to be the terminal course for nonstructural option AE students, and is designed to provide a general understanding of design, construction and integration issues that affect these structural systems. This course may not be taken by AE Structural Option students or Architecture students.

Prerequisites: Enforced Prerequisite at Enrollment: AE 221 and AE 222 and AE 308

Changes Effective Spring 2023:

• Change Description

AE 405: Geotechnical Engineering (4 Credits)
Old Listing Effective Through Fall 2022:

Course prepares students for understanding, analysis, evaluation, and design of the most commonly used shallow foundation systems to support buildings. All structural loads on buildings, most notably gravity loads and win/seismic lateral loads, are transferred to the soil supporting the building. In order for the building to safely deliver these loads to the soil and avoid settlement issues and soil failure, a proper foundation system must be designed. Design of foundation systems is a function of soil material properties, foundation material, and the selected foundation system. This course educates the student on the basics of soil mechanics for foundation design and educates the student on how to select and design the most commonly used types of foundation systems. Course is intended to provide students with the knowledge, tools, and understanding of material properties, analysis and design principles, and methods necessary for successful construction of foundation systems within the framework of quality control, code compliance, economic
Prerequisites: Enforced Prerequisite at Enrollment: (AE 308 or CE 340) and (AE 402 or AE 404)

Changes Effective Spring 2023:

- Change Description

AE 424 Environmental Control Systems I (3 Credits)
Old Listing Effective Through Fall 2022:

Fundamental principles and applications of environmental systems in buildings. This course is intended for Architecture students. AE 424 Environmental Control Systems I (3) This course is a complement to AE 211. Environmental control systems other than the thermal environmental systems are covered in this course. AE 424 introduces architecture students to building illumination, acoustical, fire protection, electrical and plumbing design issues. Emphasis is placed on building design as a response to the technical, environmental and societal challenges. The course utilizes lectures, practicums, examinations, projects, presentations and field trips to deliver and reinforce the technical content. The course offers students opportunity to work in team settings and to present their work orally to their peers. The broad coverage of the technical and social issues and professional skills intentionally involves students in discussion and application of social and ethical responsibilities. The course is required for students enrolled in the undergraduate architecture program. AE 211 is a prerequisite for this course. The course is not available to architectural engineering students.

Prerequisites: Enforced Prerequisite at Enrollment: AE 211

Changes Effective Spring 2023:

- Change Number
- Change Abbreviation
- Change Title
- Change Abbreviated Title
- Change Description
- Change Prerequisite
- Add Concurrent

AE 430: Indeterminate Structures (3 Credits)
Old Listing Effective Through Fall 2022:

Classical methods of analysis for beams, frames, arches, and secondary stresses as applied to buildings; introduction to modern methods.

Prerequisites: Enforced Prerequisite at Enrollment: AE 308

Changes Effective Spring 2023:

- Change Description

AE 431: Advanced Concrete Design for Buildings (3 Credits)
Old Listing Effective Through Fall 2022:

Continuation of AE 402. Advanced analysis, design, and detail of concrete masonry, prestressed and reinforced concrete. AE 431 Advanced Concrete Design for Buildings (3) This is the last course in reinforced concrete design in the Architectural Engineering curriculum, and builds on previously learned skills in reinforced concrete design and analysis of statically determinate and statically indeterminate systems. Successful students will come away with sufficient understanding of the theoretical basis of concrete design to be able to learn any further aspect of concrete design on their own, and a set of specific critical skills needed by any structural designer involved with reinforced concrete structures. These skills include:- Identification of the assumptions and weakness of the theory of reinforced concrete members. – Detailed design of reinforced concrete beams and girders. – Design of reinforced concrete slabs by the direct design method. – Design of reinforced concrete slabs by the equivalent frame method. – Analysis of reinforced concrete members subjected to torsion, to determine bending and torsional moments. – Design of reinforced concrete members subjected to torsion. – Design of reinforced concrete columns, slender and non-slender. – Design of reinforced concrete columns in biaxial bending. This course is taught by a combination of lectures, solution of example problems, and design projects.

Prerequisites: Enforced Prerequisite at Enrollment: AE 402 and AE 430

Changes Effective Spring 2023:

- Change Description

AE 432: Design of Masonry Structures (3 Credits)
Old Listing Effective Through Fall 2022:

Analysis and design of unreinforced and reinforced masonry: non-bearing walls, bearing walls, shear walls, masonry building systems. AE 432 Design of Masonry Structures (3) This course is intended to prepare students in Architectural Engineering and related disciplines such as Civil Engineering and Agricultural and Biological Engineering to design load-bearing and non load-bearing masonry structures. Although the emphasis will be on reinforced masonry, the design of unreinforced masonry will also be covered. The course will begin with a discussion of the materials used in masonry construction: clay units, concrete units, mortars, grout, and reinforcement. Since masonry is designed by allowable stress methods, a discussion of allowable stress design, as compared to load and resistance factor design, is necessary from the outset. The first design applications to be discussed will be non load-bearing walls, reinforced and unreinforced. This will be followed by a brief coverage of the topic of columns. The next topic will be load-bearing walls, reinforced and unreinforced. The discussions of load-bearing walls will describe two methods for their design: the use of a straight-line interaction formula and the construction of interaction diagrams. The analysis of systems of shear walls will be described in detail, followed by shear wall design. The design of particular building systems, both low-rise and mid-rise will either be covered by lectures, or by other exercises.

Prerequisites: Enforced Prerequisite at Enrollment: AE 402 or CE 341

Changes Effective Spring 2023:

- Change Description

AE 445: Building Retuning (3 Credits)
Old Listing Effective Through Fall 2022:

AE 445 is an undergraduate course focused on the implementation of energy-efficient measures for commercial buildings and is intended for students with backgrounds in building design, construction, operations, and facilities management. This course builds upon prerequisite knowledge in building energy systems and is intended to support the career advancement in the energy services industry. Students will also gain experience in the interaction with building occupants and operators,
and also working as a team that encourage action toward energy efficient system operation.

Prerequisites: Enforced Prerequisite at Enrollment: AE 424 or AE 476 or AE 454

Changes Effective Spring 2023:

• Change Description

AE 453: Load and Energy Use Simulations for Buildings (3 Credits)
Old Listing Effective Through Fall 2022:

Course examines measurement and mathematical modeling techniques for predicting and determining energy use of whole buildings and important subsystems. Building systems use more primary energy utilization and generate more emissions than either the U.S. transportation or industrial manufacturing sectors. Due to the significance of the building sector on national energy used and emissions profiles, the development of quantitatively predictive energy and performance simulation of buildings is a rapidly advancing technical field. The Architecture and Architectural Engineering communities are pursuing aggressive programs to establish a database, protocol methodologies and computer based modeling tools that enable accurate predictions of the expected energy utilization and indoor environment performance of alternative building designs. The developing modeling tools are to be integrated with on-site performance measurements and protocol based energy auditing of facilities. Expected performance characteristics predicted by the modeling tools are compared with the measured values. The building design community is evolving to design simulation methodologies used by the transportation and manufacturing sectors. In this course, the means of measuring and monitoring of the energy use associated with a building system, both on whole building and significant subsystems – lighting, heating ventilation and air conditioning, occupant operated equipment – are reviewed. Inverse modeling techniques of using the data with associated significant independent variables, such as ambient weather parameters and occupant density, to establish empirical expected building energy use models, as well as document energy efficiency renovation impacts are detailed. Industry established building performance rating scales which use such data are discussed. Fundamental heat transfer and thermal capacitance relationships as used by the engineering design community are discussed along with linearization approximations and Fourier series techniques used to simplify the resulting complex, coupled partial differential equations that result from energy balancing model equations. Analytical and numerical approaches to solving the equations to arrive at predicted thermal loads developed by a building system are reviewed. Readily available, building simulation software packages commonly used in the building design community to determine energy used by equipment configurations to meet predicted loads are discussed. Students are required to exercise one of the standard software tools to model a specific building facility.

Prerequisites: Enforced Prerequisite at Enrollment: AE 310

Changes Effective Spring 2023:

• Change Description

AE 454: Advanced Heating, Ventilating, and Air Conditioning (3 Credits)
Old Listing Effective Through Fall 2022:

Engineering design and performance analysis procedures for complex commercial building systems, including energy conservation techniques; design project.

Prerequisites: Enforced Prerequisite at Enrollment: AE 310

Changes Effective Spring 2023:

• Change Description

AE 455: Advanced Heating, Ventilating, and Air Conditioning System Design (3 Credits)
Old Listing Effective Through Fall 2022:

Design of several different systems for a course project building; control strategy; economic comparisons using life-cycle cost techniques.

Prerequisites: Enforced Prerequisite at Enrollment: AE 454

Changes Effective Spring 2023:

• Change Description

AE 457: HVAC Control Systems (3 Credits)
Old Listing Effective Through Fall 2022:

Theory of automatic control. HVAC control applications. Control system components, control loops, development and documentation of control logic, control commissioning. AE 457 HVAC Control Systems (3) The objective of the course is to develop the knowledge and skills necessary to understand, design, document, and diagnose problems in HVAC control systems. The course builds on knowledge of HVAC system function and design obtained in prior courses in the curriculum and prepares students for advanced design courses and the capstone project. The course begins with an introduction to concepts and terminology of automatic control, followed by detailed study of control system components: sensors, controlled devices, and controllers. Understanding of these fundamentals is then applied to the development and documentation of controls for common HVAC systems and the commissioning of control systems. Relevant standard and guideline documents are referenced as necessary.

Prerequisites: Enforced Prerequisite at Enrollment: AE 454

Changes Effective Spring 2023:

• Change Description

AE 458: Advanced Architectural Acoustics and Noise Control (3 Credits)
Old Listing Effective Through Fall 2022:

Advanced consideration of noise control in buildings; ventilating system noise and vibration; acoustic design variables.

Prerequisites: Enforced Prerequisite at Enrollment: AE 309

Changes Effective Spring 2023:

• Change Abbreviated Title

• Change Description

AE 459: Measurement Science for High Performance Building Systems (3 Credits)
Old Listing Effective Through Fall 2022:
The course Measurement Science for High Performance Building Systems is meant to provide students hands-on experience of measuring building energy performance, thermal comfort, and indoor air quality. Students will learn standardized test methods and instrumentation for field investigation of building system performance. Using the measurement data from real buildings (both commercial and residential), students will be able to critically evaluate performances of building HVAC system, building envelope, and environmental quality in occupied spaces. Students will also learn how to renovate building systems based on field monitoring data. This course provides a foundation for engineering students for design of net-zero energy and high performance buildings that address energy saving, occupant comfort, productivity, and health.

Prerequisites: Enforced Prerequisite at Enrollment: AE 310 and AE 454

Changes Effective Spring 2023:

• Change Description

AE 461: Architectural Illumination Systems & Design (3 Credits)
Old Listing Effective Through Fall 2022:

Lighting units & photometry; lighting equipment; design criteria, calculation methods; the design process; energy codes. AE 461 Architectural Illumination Systems & Design (3) This course will prepare students to design basic lighting systems by providing them with background information and experience to do the following: 1. Develop their knowledge of lamp, luminaire, and control types and evaluate their applicability to a particular design situation. 2. Establish fundamental design criteria for a variety of lighting applications. 3. Conduct appropriate and accurate analyses of lighting systems to assess system performance and evaluate its ability to meet design criteria. 4. Implement a completed design by specifying all of the components of the system and providing an appropriate system layout. This is the first full-semester lighting course that students receive in the Architectural Engineering Department's Lighting/Electrical Option.

Prerequisites: Enforced Prerequisite at Enrollment: AE 311

Changes Effective Spring 2023:

• Change Description

AE 464: Advanced Architectural Illumination Systems & Design (3 Credits)
Old Listing Effective Through Fall 2022:

Flux transfer theory; advanced lighting and control systems; emergency lighting; daylighting; visual performance issues; psychological aspects of lighting. AE 464 Advanced Architectural Illumination Systems & Design (3) This is the final undergraduate architectural lighting course in the Lighting/Electrical Systems Option. The course focuses on advanced topics related to lighting design such as luminous flux transfer and its application to lighting analysis procedures, advanced issues in photometry, advanced control systems, and advanced topics in lighting design. The light design topics include the psychological aspects of lighting, and design for complex spaces such as museums, stores, and video conferencing. The course includes a weekly hands-on practicum experience, homework, exams and a design project.

Concurrent Courses: Enforced Concurrent at Enrollment: AE 461

Changes Effective Spring 2023:

• Change Description

AE 466: Computer Aided Lighting Design (3 Credits)
Old Listing Effective Through Fall 2022:

Design and analysis for outdoor area; floodlighting; and interior applications, including design criteria; economic analysis; modeling algorithms; and visualization. AE 466 Computer Aided Lighting Design (3) The goal of this course is to cultivate an understanding of good lighting design practice through a series of design and analysis problems. Course topics include design criteria, design practice, and the application of lighting hardware and analysis procedures for outdoor area lighting, economic analysis of lighting systems, interior lighting design and lighting system visualization. Commercially available computer software is applied to approximately seven design projects, which students present in either PowerPoint or submit in a short report format. Students, faculty and outside professionals critique the project solutions. The critiques enhance the learning experience for all students through the evaluation of different lighting solutions applied to the same design problem.

Prerequisites: Enforced Prerequisite at Enrollment: AE 461

Changes Effective Spring 2023:

• Change Description

AE 467: Advanced Building Electrical System Design (3 Credits)
Old Listing Effective Through Fall 2022:

Design of electrical systems for commercial and industrial facilities emphasizing design practice and integration with codes and standards.

Prerequisites: Enforced Prerequisite at Enrollment: AE 311 and EE 211

Changes Effective Spring 2023:

• Change Description

• Change Prerequisite

AE 470: Residential Building Design and Construction (3 Credits)
Old Listing Effective Through Fall 2022:

Managerial aspects; architectural and code considerations; cost estimating, design, and construction of structural, plumbing, HVAC, and electrical systems.

Prerequisites: Enforced Prerequisite at Enrollment: AE 372 or CE 332

Changes Effective Spring 2023:

• Change Description

AE 472: Building Construction Planning and Management (3 Credits)
Old Listing Effective Through Fall 2022:

The objective of AE 472 is to introduce students in the construction management option of the Architectural Engineering program to the process in which building construction contractors acquire building projects, and the range of services typically provided on these projects. Upon completion of this course, students will have a working understanding of the preconstruction process and methods of acquiring negotiated work in building construction. They will be capable of assembling estimates, schedules, cash-flow curves, and site plans for building projects, and will have a working knowledge of competitive presentation strategies and develop professional presentation skills. The content of the course centers upon the process in
which companies plan for and acquire projects as construction managers and general contractors. Specific topics include schematic estimating and scheduling, design coordination of structural, architectural, and mechanical systems, value engineering processes, and site planning. The financial aspects of construction work are also presented, including project financing, cash flow, and accounting. A significant portion of the course is also devoted to the development of strategic and competitive business presentation, including risk assessment, fee structure, team dynamics, and technical presentation skills. The class relies heavily upon the application of all content by students in the context of a team project. The project involves the distribution of a "Request for Proposal" for which students prepare a competitive proposal for an actual building construction project planned on the Penn State University Campus. Class activities include the presentation of key issues followed by in-class or independent exercises to reinforce themes and strategies to be applied in the project proposal. Students are assessed on their performance on discussion quizzes, independent exercises, class participation, a team presentation, and exams.

Prerequisites: Enforced Prerequisite at Enrollment: AE 475

Changes Effective Spring 2023:

• Change Description

AE 473: Building Construction Management and Control (3 Credits)
Old Listing Effective Through Fall 2022:

Building construction project planning; construction cost, schedule, quality and safety control systems; project cost accounting; change management; construction company management. AE 473 Building Construction Management and Control (3) The goals of this course are for students to learn how to perform detailed construction planning, identify potential problems during construction, and manage changes throughout a construction project. By completing this course, students will better understand the role of the general contractor/construction manager in analyzing the construction aspects of a building project and designing the construction engineering and management systems to effectively execute the project. The main course objectives include learning how to perform and implement detailed planning for a construction project together with monitoring the project progress and performance including detailed cost control. Other course objectives emphasize gaining knowledge of the key decisions that construction executives make when managing a construction company and identifying potential projects to pursue. Students will also be introduced to the management of changes which occur throughout a project and how to negotiate changes. Finally, ethical standards for a professional engineer and their impact on decisions within the construction industry are important course learning objectives. The course is taught via a combination of teaching methods that rely on problem based learning and application of all content by students in the context of a team project planned on the Penn State University Campus. Class activities include the presentation of key issues followed by in-class or independent exercises to reinforce themes and strategies to be applied in the project proposal. Students are assessed on their performance on discussion quizzes, independent exercises, class participation, a team presentation, and exams.

Prerequisites: Enforced Prerequisite at Enrollment: AE 473

Changes Effective Spring 2023:

• Change Description

AE 475: Building Construction Engineering I (3 Credits)
Old Listing Effective Through Fall 2022:

Project planning, supervision, inspection of architectural and structural operations in major buildings; mobilization, coordination of trades; offsite testing and fabrication.

Prerequisites: Enforced Prerequisite at Enrollment: AE 372

Changes Effective Spring 2023:

• Change Description

AED 322: Visual Culture and Educational Technologies (3 Credits)
Old Listing Effective Through Fall 2022:

The course provides a foundation for innovative integration of digital technologies in art making, viewing, and teaching. AED 322 Visual Culture and Educational Technologies (3) The purpose of the course is to develop skills, questioning attitudes, and uses for technology in art and art education; and to engage in electronic mediated communication and new media artmaking. This course is for both undergraduate Art Education degree options: (1) Schools, and (2) Museums & Cultural Institutions. The focus is on students’ constructing a critical understanding of technology as a cultural interface in contemporary art, visual culture, and art education. This course addresses issues, practices, and potentials of instructional technology for art education. Course participants explore the pedagogical implications of intertextual Webs, hypertext & hypermedia, blogs, simulations, virtual reality, threaded dialogue, WebQuests, online games, media communities, collaborations, adaptive and assistive technologies, and media-rich “student papers.” This course emphasizes the importance of sharing perspectives in an educational context, and on how e-learning course tools, along with specific teaching strategies, can facilitate shared perspectives.

Prerequisite: Enforced Prerequisite at Enrollment: AED_BS major

Changes Effective Spring 2023:

• Add IL Attribute
• Change Title
• Change Description
• Add Cross-listing
• Change Prerequisites

ANSC 215: Pets in Society (3 Credits) (GS)
Old Listing Effective Through Fall 2022:

Introduction to the varied roles that companion animals play in human society and their impact on human activity and well-being. ANSC 215 Pets in Society (3) (GS)Companion animals have far-reaching influence on many aspects of human society. How humans relate to pets varies from individual to individual and is influenced by many factors. The field of human-animal interactions is quickly evolving and is supported by a variety of disciplines and empirical research. This course provides a broad introduction to the varied roles and influences of pets on human life and society. Topics of discussion include the historical, social, economic, scientific, legal and political roles of pets in American society. The influence of companion animals on human development and mental health throughout the lifespan and in the case of disability is examined from a social science perspective Genetics, breed, physical, and environmental influences play obvious and important roles in the development of canine and feline behavior and are used as examples of the multiple causes of behavioral development and expression. Learning theory and operant conditioning are discussed as they relate to training. Newly discovered risks and benefits of animal ownership on human health are discussed, including the influence of pet ownership on
cardiovascular disease and allergy development. Issues of responsible pet selection and ownership are discussed in relation to animal welfare and societal responsibility. Because of the emerging nature of human-animal interaction research, an important goal of the course is to instruct students on the scientific method and recognition of research methodologies. Critical evaluation of theoretical models and empirical research in class and small group discussions is used to show how these questions can be addressed scientifically. Throughout the course, students have the opportunity to gather information from various sources and make informed decisions on controversial topics and to understand the impact of individual actions and decisions on broader society.

Changes Effective Spring 2023:

- General Education Recertification
- Change Description

ARCH 130A: Basic Design and Research I (3-6 Credits: Maximum of 6 Credits)
Old Listing Effective Through Fall 2022:

Multidimensional design and perceptual development. Formulation of abstracted concepts and logical visual models.

Changes Effective Spring 2023:

- Change credits
- Change Description

ARCH 419: Design Research and Architectural Programming (3 Credits)
Old Listing Effective Through Fall 2022:

ARCH 419 prepares undergraduate Architecture students with the skills and tools to conduct research contributing to the pursuit of an architectural idea in a rigorous, in-depth manner, and then subsequently utilize the acquired knowledge in the development of the idea through the completion and presentation of a thoroughly considered architectural design project (building, component or system). This course will help students prepare for their independent or directed design research studio through the exploration of foundational approaches and methodologies in the field. It will foster in-depth design inquiry and research; build upon and reiterate design awareness, skills, and methods introduced in previous years; and introduce, discover and develop new ones. This course will help prepare students to identify significant design project topics, select the proper methodology, and engage in independent or directed research.

Prerequisites: Enforced Prerequisite at Enrollment: ARCH 332

Changes Effective Spring 2023:

- Change Prerequisite

ARCH 480: Technical Systems Integration (3 Credits)
Old Listing Effective Through Fall 2022:

Presentations of buildings' analyses from a multiplicity of viewpoints: architectural, spatial, environmental, mechanical, construction assembly. ARCH 480 Technical Systems Integration (3) This course is a synthesis of topics previously introduced in the AE sequence – such as structural, mechanical, electrical, and other systems related to a building's technical performance. Students will practice the purposeful integration of all technical aspects of a buildings design, providing them with a working knowledge of matters related to energy efficiency, sustainability, lighting, and acoustics. The focus of the course lies in questioning how technical requirements and design intentions should be integrated during the design process, so as to enhance the aesthetic and performance qualities of an architectural project. This course combines lectures, field trips, and technical assignments, along with analysis and implementation of energy, day lighting, electrical lighting, and acoustical concepts in the student's design efforts. In addition to the synthesis of building design and technical systems, this course will further develop the student's knowledge of active/passive techniques for sustainable architecture. A focus on the collaborative workings/environment of the architectural practice helps students to translate systems integration strategies into graphic/digital representation, and reinforces the interdisciplinary nature of designing and constructing successful works of architecture.

Prerequisites: Enforced Prerequisite at Enrollment: C or better in ARCH 203 and ARCH 204 and ARCH 332 and AE 422 and AE 424

Enforced Concurrent at Enrollment: ARCH 431

Changes Effective Spring 2023:

- Remove prerequisite and concurrent
- Add Corequisite

ARCH 491: Architectural Design Studio (6-12 Credits: Maximum of 12 Credits)
Old Listing Effective Through Fall 2022:

Problems in architectural planning and design; and/or programming, implementation methodologies and applications for various environmental design scales. ARCH 491 Architectural Design VII-Thesis (6) It is the goal of this program that, upon completion of the fifth year, each student will have the ability to pursue an architectural idea in a rigorous, in-depth manner and be able to express the knowledge of and implication of that idea through the completion and presentation of a "thoroughly considered building design project." It is the intent of the fifth-year component of the Bachelor of Architecture program to foster the spirit of in-depth design inquiry and research, and to build upon and reiterate design awareness, skills, and methods introduced in previous years; and to introduce, discover and develop new ones. To these ends the primary educational vehicle is the use of a propositional thesis as a way of directing the study toward the linking of theory and building in a meaningful manner.

Prerequisites: Enforced Prerequisite at Enrollment: C or better in (ARCH 431 OR ARCH 432) and ARCH 311W

Enforced Concurrent at Enrollment: ARCH 451

Changes Effective Spring 2023:

- Change Title
- Change Abbreviated Title
- Change Description
- Change Prerequisite

ART 466W: Individual Approaches II (6 Credits) (WF) (BA)
Old Listing Effective Through Fall 2022:

An advance studio/lecture addressing the preparation for potential employment and/or entrance into graduate studies. ART 466W ART 466W Individual Approaches II (6)(BA) This course meets the Bachelor of Arts degree requirements. ART 466W is the Visual Art Studies capstone experience where students are given the opportunity to experience the
professional aspects of a practicing artist. In addition to completing the last 2-4 pieces toward their exit portfolio students will address vital activities surrounding applying for employment and graduate school. Students will create “packets” including resumes, cover letters, post cards, slides, and portfolio CDs that can be used directly out of school for various calls and job listings. In addition topics that will be addressed in depth are photo-documentation, and inventory of work through database maintenance. All of these issues will culminate with small group exhibitions which will be curated, installed, and promoted by the students.

Changes Effective Spring 2023:

- Change Credits

**ARTH 302: Pagans and Christians: Encounters in Early Medieval Art (3 Credits) (BA) (GA)**

Old Listing Effective Through Fall 2022:

A survey of the art of Western Europe from the Early Christian era through the Ottonian Empire, c.300-1050 CE. ART H 302 illuminating the Dark Ages (3) (GA:IL)(BA) This course meets the Bachelor of Arts degree requirements. Art History 302 concentrates on the art of northern Europe between 600 and 1050 CE, from the years which saw the art and culture of the migration period in Europe meet and merge with the Greco-Roman traditions of the Mediterranean, to the beginnings of Romanesque art. Arts of the Jewish and Islamic traditions will also be discussed. Works studied include architecture, manuscript painting, ivory carving and goldsmith work, most of which were produced by or for members of the clergy, royalty or the lay aristocracy. The basic structure of the course is chronological. The course is designed to meet two principal goals. The first is to increase students' powers of visual analysis and help them build a critical vocabulary for discussing an art object’s medium, composition, style, and iconography. The second is to foster an understanding of the deep implication of the visual arts in their social and cultural contexts. The course therefore involves significant material relating to political, economic and religious issues. It investigates problems in patronage, function, reception and censorship. It considers such intra- and cross-cultural issues as representations of gender, sexuality, and race. Requirements include essay exams and at least one paper. As a general education course in the arts, this course provides an introduction to early Medieval art to a student of any major. This course has no prerequisite, and presumes no prior exposure to art. Students majoring in Art History will learn in it both the common vocabulary of the field and the outlines of the field that form the foundation for future study.

Changes Effective Spring 2023:

- Change Title
- Change Abbreviated Title

**BA 243: Social, Legal, and Ethical Environment of Business (4 Credits)**

Old Listing Effective Through Fall 2022:

Explores the ethical, political, social, legal and regulatory, technological, and demographic diversity environment of business. A student may not receive credit toward graduation for both B LAW 243 and B A 243.

Changes Effective Spring 2023:

- Add US Attribute

**BA 302: Supply Chains (3 Credits)**

Old Listing Effective Through Fall 2022:

BA 302 provides non-business students with an introduction to the issues and decisions routinely faced by supply chain managers and the impact of effective supply chains on today’s business environment. Using the Supply Chain Operations Reference model as a framework, this course considers how successful firms plan, integrate and execute sourcing, manufacturing, customer fulfillment, reverse logistics and sustainment processes across a complex marketplace to provide value to the customer. The course looks at the interplay and coordination of product, financial and information flows through a supply chain resulting in value creation for the customer and competitive advantage for the firm. Students will consider the roles of drivers such as cost, quality, time, flexibility, innovation and information sharing in designing supply chain strategies in support of overarching business strategies. Through detailed exploration of models, case studies and real world events, coupled with the application of operations management tools and techniques, the course provides the opportunity to identify and dissect issues, and develop solutions to supply chain challenges not only faced by today’s business managers, but also impact the customer. The course examines supply chain organization, implementation and management planning, the evaluation and control of manufacturing processes, and the execution of supplier and customer management activities. Students will use basic information technologies and programs to leverage tools like business process mapping, value indexing, and total cost analysis to aid in the identification and mitigation of supply chain issues in a global business environment. Students will also be exposed to current supply chain issues such as sustainability and the impact of boundary spanning information technologies as relevant keys to competitive advantage. The course provides the basic supply chain knowledge and skills necessary for the non-business major to be an effective member of a cross functional team in a professional business environment while providing a level of understanding to benefit the student in navigating the complex customer fulfillment issues present as a consumer of goods and services in today’s globally connected marketplace. A student may not receive credit towards graduation for both BA 302 and and SCM 301.

Prerequisites: Enforced Prerequisite at Enrollment: (ECON 102 or ECON 104) and ACCTG 211 and (SCM 200 or STAT 200 or ECON 306)

Changes Effective Spring 2023:

- Prerequisites

**BBH 101H: Introduction to Biobehavioral Health (3 Credits) (H)**

Old Listing Effective Through Fall 2022:

Introduction to interdisciplinary study of health, examining the interaction of biological processes and behavior on health.

Changes Effective Spring 2023:

- Change Abbreviated Title
- Change Description

**BE 304: Engineering Properties of Food and Biological Materials (3 Credits)**

Old Listing Effective Through Fall 2022:

Engineering properties play a crucial role during the analysis, design, and synthesis phases of problem solving. The accurate knowledge of properties is essential to the precise determination of the overall system and component responses. Due to the timedependent and
environmentally-sensitive nature of properties of the agricultural, food, and biological materials, the theory and measurement systems are different from those used for conventional engineering materials and their systems. Therefore, the focus of this course is to provide the students with sound bases of the theory and measurement methods that are used to quantify physical, mechanical, thermal, biological, and chemical properties of products and their systems. In addition, the significance and importance of the inherent variation in the property values of agricultural, food, and biological materials is emphasized.

Prerequisites: Enforced Prerequisite at Enrollment: EMCH 210 or EMCH 213

Enforced Concurrent at Enrollment: BE 301 and (CE 360 or ME 320) and (MATH 251 or MATH 252)

Changes Effective Spring 2023:
- Change Number
- Change Prerequisite
- Add Concurrent

BE 494H (1-6 Credits: Maximum of 999 Credits) (H)
Old Listing Effective Through Fall 2022:
Senior honors thesis.

Changes Effective Spring 2023:
- Title
- Abbreviated Title
- Description
- Add Prerequisites

BE_T 206: Medical Computers and Networks (4 Credits)
Old Listing Effective Through Fall 2022:
Introduction to computer hardware, software and networks for medical equipment; PC and medical equipment hardware; networking fundamentals. BE_T 206 Medical Computers and Networks (4) This course provides an introduction to computer hardware, software and networks used by medical equipment with an in-depth background of PC and medical equipment hardware and networking fundamentals. The topics covered include: Microsoft Office review and advanced applications; personal computer (PC) hardware fundamentals; formatting and sectoring hard drives; installing various Windows operating systems and other required software/drivers; networking hardware component fundamentals; administrator networking software settings and configurations; fundamentals of health level 7 (HL7) standards; fundamentals of digital imaging and communication in medicine (DICOM) standards; operation of DICOM viewer software for medical images; fundamentals of picture archive and communications systems (PACS) configurations for medical applications; fundamentals of The Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy and Security Rules in regards to medical equipment maintenance; creation of a simple PC network with several PCs and basic networking hardware components; creation of a simple physiological computer based network with several physiological devices and basic networking components; creation and testing of network cables using applicable tools and test equipment; troubleshoot and correct technical problems of a basic PC and medical equipment networks using appropriate software, tools and equipment; and analyzing and generating a written reports. Lectures will be supported by laboratory exercises in which the student learns about PC hardware, PC software, network hardware, network configuration and troubleshooting these systems. Students will be required to prepare written laboratory reports outlining the laboratory activity. Reports will be graded based both on their technical quality and their grammatical and professionalism. Students in BET 206 will be required to use computers in both class and laboratory exercises to use software, create and configure networks for PCs and physiological monitors.

Prerequisite: BE_T 201, IST 220

Changes Effective Spring 2023:
- Description
- Prerequisites
- Add Concurrent

BIOL 155: Introduction to the Biology of Aging (3 Credits) (GN) (BA)
Old Listing Effective Through Fall 2022:
Examination of human aging from a biological perspective. Population demographics, physiological and pathological changes, and healthy
lifestyles are discussed. Students who have passed BIOL 409 may not schedule this course.

Changes Effective Spring 2023:
- General Education Recertification
- Description

BIOL 403: Biological Writing and Communication for Research (3 Credits)
Old Listing Effective Through Fall 2022:
Each student will pose and address their own research question with support from the scientific research literature. Each student will share their own research findings in written and oral formats, both for scientific and general public audiences. Data to address each student’s research question can come from their own undergraduate research or from queries with publicly-available data sets. Students should expect to give and receive regular peer feedback on writing assignments relating to their research project and incorporate that feedback from peers and from their teacher in synthesis projects. Synthesis projects, where students are expected to integrate and make revisions to writing from the semester, include a short research manuscript, a research poster and oral presentation, and a blog post geared toward the general public. Weekly workshops paired with readings on scientific theory about writing and communication will help students practice technical science writing in general.

Prerequisites: Enforced Prerequisite at Enrollment: (BIOL 110 or BIOL 110H or MICRB 201 or MICRB 201H or BMB 251 or BMB 251H or STAT 200 or STAT 250) and (ENGL 15 or ENGL 137H or CAS 137H or ENGL 30H)

Changes Effective Spring 2023:
- Change Prerequisite

BMB 400A: Molecular Biology of the Gene (3-3 Credits: Maximum of 3 Credits)
Old Listing Effective Through Fall 2022:
Molecular Biology of the Gene examines the flow of information in living things at the molecular level. Topics such as the following are included: 1) DNA replication, mutation, repair and recombination, 2) RNA transcription and modification, 3) protein translation, folding and modification, and 4) gene regulation. This class is designed as a one-semester course having the objectives of understanding concepts in molecular biology and gene regulation and exploring research materials and methods used in the laboratory. Subjects are related to forensic applications when applicable. Course materials are prepared not only from the textbook but also from the primary literature. Therefore, students who want to take this course should have some familiarity with reading research articles.

Prerequisites: Enforced Prerequisite at Enrollment: (BIOL 222 or BIOL 322) and (BMB 251 or MICRB 251 or BIOL 230W or BMB 251H or BIOL 230M) and (CHEM 212 or CHEM 212H)

Changes Effective Spring 2023:
- Change Abbreviation
- Change Number
- Change Title

BMB 450: Microbial/Molecular Genetics (2 Credits)
Old Listing Effective Through Fall 2022:
This course will focus on understanding the mechanisms and applications of the tools of both classical and molecular genetics to the study of prokaryotic organisms. To that end, topics to be discussed will include: 1) structure and replication of bacterial genomes (chromosomes, plasmids, etc.); 2) the organization of genes on bacterial genomes (operons, regulons, etc.); 3) regulation of gene expression; 4) mutagenesis and DNA repair; 5) recombination; 6) extrachromosomal DNA elements (plasmids, transposable elements and bacteriophages); 7) gene transfer in bacteria; 8) mechanisms of “immunity” to foreign DNA uptake; and 9) classical and molecular genetic analyses (complementation, conditional mutations, screens and selections, recombinant DNA, HTP techniques, nucleic acid mobility shift assays, blots, gene fusions, etc.). The course will utilize a variety of formats including formal lecture presentations, guest lectures by BMB faculty performing research in the area of prokaryotic genetics, as well as student presentations.

Changes Effective Spring 2023:
- Credits
- Title
- Description
- Prerequisite

CAS 175: Persuasion and Propaganda (3 Credits) (BA)
Old Listing Effective Through Fall 2022:
Propaganda, in common usage, is a deliberate, systematic attempt to manipulate beliefs and emotions, usually through methods considered deceitful and unethical. Persuasion, on the other hand, is an everyday activity in our personal, social, and civic lives. Persuasion is considered acceptable, even necessary in a free society. This course will explore the distinction historically and theoretically between propaganda and persuasion, with an emphasis on developing the critical skills necessary to distinguish between the two. There are many different definitions of propaganda, and the term often is used to label and discredit political opponents. This course allows students to develop a more precise understanding of propaganda and the techniques of the propagandist. In more practical terms, students will learn to recognize, describe, and evaluate propaganda in all of its various forms and contexts. Toward this end, it includes important cases from the history of propaganda as well as contemporary cases of public advocacy that raise questions about the distinction between persuasion and propaganda.

Changes Effective Spring 2023:
- Change Abbreviated Title

CAS 390: Qualitative Research Methods (3 Credits) (GS)
Old Listing Effective Through Fall 2022:
An overview of Qualitative Research Methods, including how to conceive, design and execute a research study. CAS 390 Qualitative Research Methods (3) (GS) This course provides students with an understanding of both qualitative research methods and the theoretical frameworks that inform qualitative inquiry. Additionally, this course focuses on tools for data collection such as individual and focus-group interviewing and observing and recording interaction. This course provides practical
experience for students in collecting and analyzing qualitative data with and without the use of technology and examines particular difficulties in the interpretation and reporting of qualitative findings. Qualitative Research Methods is course that bridges disciplinary boundaries and is useful to any student who will be investigating human interaction.

Changes Effective Spring 2023:

- General Education Recertification

**CC 200: Introduction to Corporate Communication (3 Credits) (BA)** *(GS)*

Old Listing Effective Through Fall 2022:

As a field, Corporate Communication involves taking organizational goals and translating them into communication strategies and tactics inside and outside the organization as well as managing communication processes on an ongoing basis. Corporate Communication is complex, dynamic, and involves navigating various communication channels. As a lower-level introduction to Corporate Communication, this course introduces fundamental concepts, theories, and practices in Corporate Communication by providing a basic overview for students within the major/minor, as well as those who may not necessarily go on to major in the field. The course emphasizes the application of Corporate Communication concepts for any contemporary professional.

Prerequisite: CC 300 or ENGL

Changes Effective Spring 2023:

- Remove prerequisite

**CC 401: Internal Communication (3 Credits)**

Old Listing Effective Through Fall 2022:

Explores the various ways organizations communicate with internal stakeholders, including senior leaders, managers, and frontline employees. CC 401 focuses on strategic communication processes between the organization and internal stakeholders such as senior leaders, managers, and frontline workers. The course explores the effective use of internal media, including intranet content, emails, social media content (strongly directed at internal audiences), memos, reports, newsletters, brochures, training content, and speeches. Considerable attention will be given to how to write effectively for each channel. Emphasis will also be placed on the importance of strategically coordinating internal communication and sustaining the overall function. CC 401 provides a thorough grounding in one of the two major subdivisions of the Corporate Communication field (with external communication as the other major subdivision). As an advanced course in the major, CC 401 provides considerable depth in terms of concepts, theories, and practices. Students will mainly need to apply, analyze, evaluate, and synthesize/create in this course. Students will primarily explore internal communication in terms of present day practices and future trends.

Changes Effective Spring 2023:

- Change prerequisite

**CC 402: External Communication (3 Credits)**

Old Listing Effective Through Fall 2022:

Explores the various ways organizations communicate with external stakeholders. CC 402 focuses on the process of communication with external stakeholders. An integral part of Corporate Communication, external communication is an integrated function that includes building relationships and writing for the traditional media, creating materials such as advertisements and brochures, writing for the web, and creating credible spokespeople. As such, this course focuses on identifying and defining methods of external communication, as well as, how to write effectively for each communication channel. Students will gain experience in core Corporate Communication competencies, including writing media releases, integrating content and design, and evaluating communication effectiveness.

Prerequisites: CC 200 or CC 300. Fifth semester standing

Changes Effective Spring 2023:

- Change prerequisite

**CC 490W: Seminar in Corporate Communication (3 Credits) (WF)**

Old Listing Effective Through Fall 2022:

Explores and applies concepts and theories to various cases, emphasizing written development of strategies relevant to the internal and external organization. This course explores Corporate Communication as it encompasses both the internal and external organization. It takes a comprehensive approach to exploring theory and application in the context of specific cases. Course content builds on and unifies other required courses in the major. Coursework will primarily involve students developing major strategies and related tactics for existing or newly emerging organizations. Coursework may also involve students applying Corporate Communication concepts and theories to the development of their own career plans. This course emphasizes student synthesis and creativity in applying theory and research from Corporate Communication and allied fields to the total organization. The course will typically include analysis and evaluation of practitioner and scholarly readings, students’ work, and case studies.

Prerequisites: CC 200 or CC 300. Fifth semester standing

Changes Effective Spring 2023:

- Change prerequisite

**CC 495: **SPECIAL TOPICS** (3 Credits)**

Old Listing Effective Through Fall 2022:

CC 495A Internship in Corporate Communication (3) Communications experience in businesses or agencies that may include activities in writing, media production, planning, public relations, advertising, employee relations, or training.

Changes Effective Spring 2023:

- Add prerequisite

**CC 495A: Internship in Corporate Communication (3-3 Credits: Maximum of 3 Credits)**

Old Listing Effective Through Fall 2022:

CC 495A Internship in Corporate Communication (3) Communications experience in businesses or agencies that may include activities in writing, media production, planning, public relations, advertising, employee relations, or training.

Prerequisite: MKTG 310 and sixth-semester standing

Changes Effective Spring 2023:
CE 410: Sustainable Residential Land Development (3 Credits)
Old Listing Effective Through Fall 2022:

C E 410 provides students with a working knowledge of the residential land development design process including conservation and green design approaches; site assessment; grading and earthwork; utility design and layout; and stormwater management. The course covers the subdivision and land development regulatory process, zoning issues, and the elements of civil infrastructure design required in the residential land development process. Conservation design and sustainable development techniques are emphasized throughout the course. The course focuses on practice-oriented design problems and a real piece of land (either University owned or privately held) will be used throughout the semester for demonstration of design approaches for homework assignments and in-class examples. The course is an elective for students in the Civil Engineering major and an elective in the Residential Construction Minor.

Prerequisites: Enforced Prerequisite at Enrollment: CE 332 and seventh semester standing in AE_BAE or CE_BS. Enforced Corequisite at Enrollment: AE 372

Changes Effective Spring 2023:

- Change Title
- Change Abbreviated Title
- Change Description
- Change Prerequisite
- Change Concurrent

CE 421W: Transportation Design (3 Credits) (WF)
Old Listing Effective Through Fall 2022:

Design of streets and highway facilities; emphasis on geometric elements, intersections and interchanges, roadway drainage, and pavement design. C E 421W C E 421W Transportation Design (3)This course provides advanced study in highway engineering and is designed for civil engineering students who are interested in Transportation Engineering careers. It includes topics such as functional classification, highway cross-sections, horizontal and vertical alignment and sight distance. Other topics are pavement design, drainage intersection and interchange design and highway signs. The students will also have a CAD lab where they design a complete highway system. The semester project provides hands-on highway design experience and includes the planning and operational aspects of a new highway design. This course serves as a capstone design course with writing projects. Students are expected to do in-class presentations of their projects.

Prerequisites: Enforced Prerequisite at Enrollment: CE 321

Changes Effective Spring 2023:

- Change Description
- Remove Prerequisite
- Add Concurrent

CE 423: Traffic Operations (3 Credits)
Old Listing Effective Through Fall 2022:

The highway capacity manual, concepts and analyses, freeway operations, signalized and unsignalized intersections, signal coordination, traffic impact studies.

Prerequisites: Enforced Prerequisite at Enrollment: CE 321

Changes Effective Spring 2023:

- Description
- Prerequisite

CE 448W: Advanced Structural Design (3 Credits) (WF)
Old Listing Effective Through Fall 2022:

Wind, snow, seismic, bridge loads; building design using steel, concrete, and prestressed concrete; advanced steel connections; capstone project; computer applications. C E 448W C E 448W Advanced Structural Design (3)The objectives of the course are to develop an understanding of advanced structural engineering design issues in a capstone context that will merge knowledge gained in prerequisite structural design and analysis courses. Building on concepts introduced in introductory steel building, concrete building, and foundation design, students will gain proficiency in structural conceptualization, environmental and induced load determination, modeling and analysis, detailed design of steel and concrete structures, and graphical communication.

Changes Effective Spring 2023:

- Title
- Abbreviated Title
- Remove Prerequisite

CE 472W: Environmental Engineering Capstone Design (3 Credits) (WF)
Old Listing Effective Through Fall 2022:

Principles and design of unit operations for water; domestic and industrial wastewater treatment; equipment selection and application. C E 471 C E 472W Environmental Engineering Capstone Design (3)This course will integrate engineering science and design skills through application to an open-ended environmental problem dealing with one or more of the following: industrial sustainability and pollution prevention; water transmission and treatment; wastewater collection and treatment; solid waste collection, treatment, and disposal; remedial investigation and feasibility studies for a hazardous waste site.

Changes Effective Spring 2023:

- Removed Prerequisite

CE 476: Solid and Hazardous Wastes (3 Credits)
Old Listing Effective Through Fall 2022:

Characteristics and treatment of solid wastes and hazardous wastes. C E 476 C E 476 Solid and Hazardous Wastes (3)Solid waste management continues to be a major area of concern for the Environmental Engineering profession. Based on the principle of the conservation of mass, we know that all of our wastes must be deposited in either the air, water or land environments. With improvements in air and water pollution control technologies, resulting in solid residuals, an increasing waste load is being placed on the land. Environmental impacts are being addressed as a future need.

Changes Effective Spring 2023:

- Description
- Prerequisite
CHE 446: Transport Phenomena (3 Credits)
Old Listing Effective Through Fall 2022:

Fundamental treatment of mass, heat, and momentum transfer; emphasis on transport properties and mathematical models of chemical engineering transport processes. CH E 446 Transport Phenomena (3) This is an intermediate course in transport phenomena intended to expand on the materials introduced in the required undergraduate courses on momentum, heat and mass transfer. It introduces the student to the rigorous formulation of transport problems using the conservation principles and flux expressions, and identifies the similarities and differences among the transport processes for momentum, heat, and mass. The main focus of the course is on microscopic treatment of transport problems, with particular emphasis on proper use of dimensional analysis and scaling arguments. Transport phenomena is a rather mathematical subject and the student is assumed to be familiar with ordinary and partial differential equations, elementary vector analysis, and elementary numerical techniques. This course is intended to prepare the student for a graduate-level course in transport phenomena.

Changes Effective Spring 2023:

• Description
• Prerequisite
• Concurrent

CMLIT 108: Myths and Mythologies (3 Credits) (IL) (BA)
Old Listing Effective Through Fall 2022:

World mythology: myths primarily of non-Western cultures, based on selected areas and traditions around the world. CMLIT 108 Myths and Mythologies (3) (GH;IL)(BA) This course offers a survey of several different cultural traditions as expressed in myth, as well as discussion of myth in its literary, social, geographical, political, and religious contexts. Various theories of the evolution and analysis of myth will be examined. Mythological traditions from around the globe will be compared in order to determine qualities which they share and examine ways in which they are unique. This course will help you see the world in new and exciting ways, based on the wide variety of global myths. At the same time, you will consider the permanent human issues which connect all of these traditions to each other, to the modern world, and to you. CMLIT 108 is one of the choices of survey courses, which count toward the Comparative Literature major and the World Literature minor. This course also fulfills the General Education humanities requirement, the Bachelor of Arts humanities requirement, and the International Cultures requirement.

Changes Effective Spring 2023:

• Add Cross-Listing

CMPSC 101: Introduction to Programming (3 Credits) (BA) (GQ)
Old Listing Effective Through Fall 2022:

This course introduces the fundamental concepts and processes of solving computational problems through the design, implementation, testing, and evaluation of basic computer programs. The concepts include basic computational constructs such as calculation, iteration, conditions, functions, and data types. These provide the basic building blocks found in virtually all programming languages. The processes include the step-by-step refinement of a problem description into individual components that can be implemented, tested, and integrated into an effective solution. As a general education course, the central theme to the course is computational thinking which includes a wide range of approaches to solving problems and designing systems that draw upon concepts fundamental to computer science. Computational thinking includes thinking about various types and sources of data, and the correctness, efficiency, elegance, and simplicity of various potential solutions. Computational thinking is applying principles of abstraction at multiple levels to focus on important details; it is applying problem decomposition to identify small problems that can be individually solved then combined to form a solution to the original problem. Upon completion of this course, the student will be able to conceptualize and implement computational solutions to problems; to utilize the imperative model of computation to solve problems; to reason about problems at multiple levels of abstraction; and to analyze code for its behavior, efficiency, and correctness. A student may receive credit for only one of the following courses: CMPSC 101, CMPSC 121, CMPSC 131, CMPSC 200, CMPSC 201

Changes Effective Spring 2023:

• Change Prerequisite

CMPSC 312: Computer Organization and Architecture (3 Credits)
Old Listing Effective Through Fall 2022:

Data representation, digital logic, instruction set/control logic, machine/assembly languages, advanced architectures, memory hierarchy, I/O devices, overall system design.

Prerequisite: CMPSC 121 or equivalent

Changes Effective Spring 2023:

• Prerequisites

CMPSC 414: Contest Programming (1 Credit)
Old Listing Effective Through Fall 2022:

Programming Contest Questions; Common Data Structures; Strings; Sorting; Searching; Combinatorics; Number Theory, Graph Algorithms; Dynamic Programming. This course provides hands-on practice with a wide range of computer science topics that are used to solve programming contest questions. These topics include common data structures; strings; sorting; combinatorics; number theory; graph traversal and other algorithms; dynamic programming. In the course, students will solve a range of programming contest questions, both using an online judge in practice sessions and during actual programming contests. In addition to solving programming problems, the course time will also be used to explore topics mentioned above and the relationship to specific problems, solution techniques, and the analysis of proposed solutions to specific problems. This course is envisioned to be a hands-on lab, with instructor supported, self-guided study. The course topics will be chosen from topics that commonly appear in current programming
contests, including but not limited to: – Contest Programming – Common Data Structures – Strings – Sorting – Combinatorics – Number Theory – Graph Traversal and Other Algorithms – Dynamic Programming

Concurrent: CMPSC 221

Changes Effective Spring 2023:

• Description
• Concurrent

CMPSC 438: Computer Network Architecture and Programming (3 Credits)
Old Listing Effective Through Fall 2022:

Network architectures, communication protocols, internetworking, network security, client-server computing, web application development, programming with APIs. CMPSC 448 Machine Learning and Algorithmic AI (3) Machine learning and artificial intelligence are closely-related branches of computer science that deal with the development of software that can "learn" how to perform useful tasks from prior data. Machine learning is mostly concerned with inferring trends from data in order to use them for future predictions. Artificial intelligence is mostly concerned about how to use knowledge gained from previous data to achieve specific goals. This course provides an introduction to important concepts in machine learning and artificial intelligence, as well as probabilistic and mathematical tools needed for applications of technology from both fields. Students will learn about important models and algorithmic frameworks used in machine learning such as linear models, neural networks, decision trees, support vector machines, k-nearest neighbor, adaboost, k-means clustering, and agglomerative clustering as well as methods for evaluating and tuning these models. Students will also learn about key artificial intelligence concepts such as A* search and reinforcement learning which are used by software agents (such as game AI's) to navigate and explore their environment.

Prerequisite: CMPSC 221, CMPSC 312

Changes Effective Spring 2023:

• Description
• Prerequisites

CMPSC 441: Artificial Intelligence (3 Credits)
Old Listing Effective Through Fall 2022:

Problem solving, search techniques including local search and genetic algorithms, knowledge representation, planning, learning, and neural networks. CMPSC 441 Artificial Intelligence (3) The primary goals of this course are (1) to provide the students with an introduction to Artificial Intelligence concentrating on some fundamental areas of AI, and (2) to provide the students with a working knowledge of LISP so that they can investigate some basic problems in AI using LISP as a vehicle language.

Prerequisite: CMPSC 122, CMPSC 360

Changes Effective Spring 2023:

• Prerequisites

CMPSC 444: Secure Programming (3 Credits)
Old Listing Effective Through Fall 2022:

Secure software design principles/practices, common threats, applied cryptography, trust management, input validation, OS-/programming language-specific issues, software validation. CMPSC 444 Secure Programming (3) This course presents an overview of the principles and practices of secure software design. The course begins with a presentation of overarching principles of secure software development that enable the design, implementation, and testing of secure systems that can withstand attacks. These principles and strategies for realizing them will be illustrated through an analysis of common security issues and pitfalls in the software development process. The course will cover a variety of programming languages including C/C++, Java, and scripting languages; different classes of systems including standalone applications, client/server systems, and peer-to-peer applications; and development issues specific to different operating systems. Students will develop and analyze programs that demonstrate security principles, strategies, coding techniques, and the use of tools that can help make code more resistant to attacks.

Prerequisite: CMPSC 221

Changes Effective Spring 2023:

• Prerequisites

CMPSC 445: Applied Machine Learning in Data Science (3 Credits)
Old Listing Effective Through Fall 2022:

Applied machine learning techniques are used in many different areas, such as the classification, visualization and analysis of data, clustering, and understanding of natural languages for human-computer interactions. These applications are crossing the boundaries of computer science and data science. Big technology firms have all started offering their own cloud machine learning platforms. This course will start with an overview of supervised and unsupervised learning, and introduce the associated libraries. It covers basic machine learning concepts, tasks, and workflow using an example classification problem based on k-nearest neighbors, Naïve Bayes, Support Vector Machine (SVM), K-means, and implementation using Python libraries. Natural language processing (NLP) techniques including n-gram models, grammar, parse trees, and part-of-speech tagging will be discussed. The issue of dimensionality of data will be discussed, and the task of clustering data, as well as supervised approaches for creating predictive models will be described, and learners will be able to apply Python predictive modeling methods while understanding process issues related to data generalizability (e.g. cross validation, overfitting). The course will also look at more advanced techniques, such as neural network, feed-forward network, back-propagation and deep learning with cloud AI services. Technological differences between using cloud services at a higher level of abstraction and coding locally will be discussed. Students will be able to identify the difference between a supervised (classification) and unsupervised (clustering) technique, identify which technique they need to apply for a particular dataset, manage and understand data, and engineer features to meet that need. Students will work in teams to develop web applications that use industry standard cloud services provided by one of the AI cloud service providers.

Prerequisite: STAT 318, MATH 220, (CMPSC 122; CMPSC 132)

Changes Effective Spring 2023:

• Prerequisites

CMPSC 451: Numerical Computations (3 Credits) (BA)
Old Listing Effective Through Fall 2022:
ALGORITHMS FOR INTERPOLATION, APPROXIMATION, INTEGRATION, NONLINEAR EQUATIONS, LINEAR SYSTEMS, FAST FOURIER TRANSFORM, AND DIFFERENTIAL EQUATIONS EMPHASIZING COMPUTATIONAL PROPERTIES AND IMPLEMENTATION. STUDENTS MAY TAKE ONLY ONE COURSE FOR CREDIT FROM MATH 451 AND 455.

Prerequisite: 3 credits of programming; MATH 230 or MATH 231

Cross-Listed Courses: MATH 451

Changes Effective Spring 2023:

• Prerequisites

CMPSC 457: Computer Graphics Algorithms (3 Credits)

Old Listing Effective Through Fall 2022:

Graphics systems/hardware, color models, transformations, projections, clipping, hidden line/surface removal, aliasing, parametric curves/surfaces, 3D modeling animation. CMPSC 457

Concepts and techniques needed to draw geometrical objects with a discrete device: Coordinate systems, clipping, curves and regions, geometric transformations, parallel and projective projections, hidden line and surface removal, animation.

Prerequisite: CMPSC 122 or MATH 220

Changes Effective Spring 2023:

• Prerequisites

CMPSC 462: Data Structures (3 Credits)

Old Listing Effective Through Fall 2022:

In-depth theoretical study of data structures such as balanced trees, hash tables, priority queues, B-trees, binomial heaps, and Fibonacci heaps. CMPSC 462

Data Structures (3) The primary goals of this course are (1) to provide the students with a set of basic data structures useful in the design of efficient algorithms, and (2) to provide the students with the ability to design and analyze new data structures as needed to solve problems. The secondary goal of this course is to introduce basic algorithm analysis techniques to prepare the students for the follow up course CMPSC 463, Design and Analysis of Algorithms. This is a required course in the BS COMP program. It is also a prerequisite for a number of other courses in the COMP program such CMPSC 463, 460, 430, etc.

Prerequisite: C or better in MATH 141 and C or better in CMPSC 122 and C or better in CMPSC 360 and CMPSC 221

Changes Effective Spring 2023:

• Prerequisites

CMPSC 463: Design and Analysis of Algorithms (3 Credits)

Old Listing Effective Through Fall 2022:

Recurrences, algorithms design techniques, searching, sorting, selection, graph algorithms, NP-completeness, approximation algorithms, local optimization algorithms. CMPSC 463

Design and Analysis of Algorithms (3) The primary goals of this course are (1) to provide the students with fundamental techniques for designing and analyzing algorithms, and (2) to introduce some techniques for dealing with inherently intractable problems. This is a required course in the BS COMP program.

Prerequisite: CMPSC 462; Concurrent: MATH 318, STAT 301 or STAT 318

Changes Effective Spring 2023:

• Prerequisites

Add Concurrent

CMPSC 470: Compiler Construction (3 Credits)

Old Listing Effective Through Fall 2022:

Compiler design and implementation; scanning, parsing, semantic analysis, optimization (including static analysis), code generation, garbage collection, and error detection. CMPSC 470

Compiler Construction (3) The primary topics of this course are areas of compiler construction that are applicable both in building compilers and in many other areas of computer science. Both the concepts and the implementation of these techniques will be emphasized. Study of these topics should improve student skills in programming, debugging and software engineering. This course is an elective for students in both the BS COMP and MS COMP programs. The course builds on concepts learned in earlier programming, data structure and computer organization courses.

Prerequisite: CMPSC 221, CMPSC 312, CMPSC 462, CMPSC 469

Changes Effective Spring 2023:

• Prerequisites

CMPSC 472: Operating System Concepts (3 Credits)

Old Listing Effective Through Fall 2022:

Theoretical and practical issues of operating systems design and implementation, process management, concurrent programming, memory management, scheduling, I/O, and security. CMPSC 472

Operating Systems Concepts (3) A course on operating systems is an essential part of a computer science education. This course is intended as an introduction to study the concepts, structure and mechanisms that underlie operating systems. A tremendous range and variety of computer systems exist for which operating systems are designed. Rather than focus on individual operating systems, this course discusses the key mechanisms of modern operating systems, the types of design trade-offs and decisions involved in operating system design and the context within which the operating system functions. After completing CMPSC 472 the student should be able to: (1) describe and understand the four major components of an operating system: process management (including synchronization, scheduling, mutual exclusion, deadlocks and concurrency), input/output (including disk scheduling and disk I/O), memory management (including virtual memory, paging, segmentation and addressing) and management of the file systems (2) describe and understand how a centralized operating system functions (3) describe and understand the various components of an operating system (4) describe the various goals of protection and the security problem in general (5) compare centralized operating systems with distributed operating systems. Students will be evaluated on homework (35% of grade), semester exams (35%), and a final comprehensive exam (30%). This course is required in the computer science (COMP) BS curriculum. It is intended for seniors to take this course in their fall semester. This course is also an admission requirement for the (COMP) MS program. No special facilities are required for this course. The software necessary is available in the computer labs or for students to use at home. This course will be offered once per year, with an expected enrollment of 80.

Prerequisite: CMPSC 312; CMPSC 462

Changes Effective Spring 2023:

• Prerequisites
Changes Effective Spring 2023:

• Prerequisites

**CMPSC 487W: Software Engineering and Design (3 Credits) (WF)**
Old Listing Effective Through Fall 2022:

Software development process, life cycle; requirements analysis, specification, design, prototyping, testing, project management, and documentation. CMPSC 487W Software Engineering and Design (3) The primary goal of this course is to familiarize students with the wide variety of techniques and methodologies used in software engineering to assist in the development of large software systems. Issues discussed include the human factors involved in developing software, models of the software development process, the use of formal methods in software engineering, software validation and verification, and software maintenance. A second goal is to help students understand the importance of written communication in software engineering, and to provide opportunities for students to improve the quality of their writing -- specifically in describing software systems. The primary means of accomplishing this goal is a semester long project in which students write requirements for a large software system. In writing these requirements, students describe the system for non-technical readers (clients and users) and specify it for technical readers (other system developers). A final goal is to emphasize the role of teams in software development. Modern software systems are simply too large to reasonably be produced by one person, so the ability to work as part of a team is vital. To support achieving this goal, techniques and tools for working in groups are discussed in the course, and students work on the semester project in teams. This course is a required course in the computer science (COMP) BS curriculum, and is intended to be taken by seniors as the capstone course for the major. As such, the course integrates material from many (potentially all) of the undergraduate computer science courses. This course is also available as an elective for students in the MS COMP program.

Prerequisite: ENGL 202C, CMPSC 221, CMPSC 462

Changes Effective Spring 2023:

• Prerequisites

**COMM 205: Gender, Diversity and the Media (3 Credits) (US) (BA) (GS)**
Old Listing Effective Through Fall 2022:

COMM (WMNST) 205 Women, Minorities, and the Media (3) (GS;US)(BA) This course meets the Bachelor of Arts degree requirements. This course is aimed at consumers of media in any form. It explores the relationship between the media and society through critical analysis of media and its role in education about and creation of social reality. Students research literature on human diversity issues in media representation. Students explore economic, political, and social implications of media practice. Course content is designed to help build deeper understanding of gender, race, ethnicity, ability, sexual orientation and class diversity in media. Students explore the role of media and media literacy within the pluralistic democratic US society in the context of a diverse global society. Communication theory helps explain how media representations impact human construction of meaning in social relationships.

Cross-Listed Courses: WMNST 205

Changes Effective Spring 2023:

• Change Description

**COMM 450B: Digital Advertising (3 Credits)**
Old Listing Effective Through Fall 2022:

This course will explore the digital advertising "ecosystem," identify key players and trends, and review programmatic media buying. COMM (IST) 450B Digital Advertising (3) Beyond keyword advertising, digital has transformed many industry activities related to buying and delivering advertising. Information technology and big data have revolutionized the way media and content providers interact and negotiate with advertisers, agencies and third parties. This course will explore the digital advertising and media "ecosystem," identify key players and trends, lay out the basics of digital advertising campaign management, and review performance analysis and evaluation. Students passing this class will be able to take the Interactive Advertising Bureau Digital Media Sales certification exam. Students can opt to take the exam any point in time, while it's not required.

Cross-Listed Courses: IST 450B

Prerequisites: Enforced Prerequisite at Enrollment: COMM 310 or IST 310

Changes Effective Spring 2023:

• Change Course Number to 450
• Description
• Cross-listing
• Prerequisites

**COMM 456: Media Criticism and Theory (3 Credits)**
Old Listing Effective Through Fall 2022:

Critical and theoretical approaches to the analysis of media and communication. COMM 456 Media Criticism and Theory (3) To what extent does media (television, movies, print, radio, Internet, etc.) shape our awareness of not only the world around us but also ourselves as thinking human beings? Is it all a matter of perception and relative exposure to these media? How do we approach everyday interfaces with the immense number of media messages in both public and private spaces? Where do our opinions of the validity of both the informational and the aesthetic standards of media messages come from? In this class we attempt to come to terms with the rise and apparent predominance of media as a dominant cultural institution.

Prerequisite: Enforced Prerequisite at Enrollment: COMM 371

Changes Effective Spring 2023:

• Change Description
• Change Prerequisite
• Add Corequisite

**COMM 484: Emerging Telecommunications Technologies (3 Credits)**
Old Listing Effective Through Fall 2022:

Overview of technology of electronic media and related societal issues. COMM 484 Emerging Telecommunications Technologies (3) COMM 484 introduces advanced topics related to the technologies in telecommunications and information processing. The course investigates old, new and prospective technologies primarily through analysis of incumbent or emerging companies bringing products and services to market. Students will examine materials not customarily used by undergraduates including stock prospectuses, company annual reports,
and Internet searches. The class will consider recent strategic alliances, mergers and acquisitions (whether consummated or not) in the context of whether and how technologies drove the deal.

**Changes Effective Spring 2023:**

- Change Prerequisite

**COMM 484A: Wireless Devices and Global Markets (3 Credits)**  
*Old Listing Effective Through Fall 2022:*

Examination of the global market for smartphones, tablets, and other wireless devices. COMM 484A Wireless Devices and Global Markets (3) Wireless devices and applications have become pervasive throughout the world. Global wireless carriers continue to evolve their networks to provide increased access and data speeds for their subscribers. To leverage the increased network capabilities, device manufacturers have responded by introducing smartphone wireless devices that are feature-rich, complex and dramatically influence the way in which subscribers access and download wireless applications. This course will specifically focus on the major wireless device manufacturers in the world. In addition, students will understand the competitive wireless landscape along with the challenges of sustaining long-term success in the global marketplace. Students will also develop an appreciation for the intense competition that exists in the wireless device market as well as how swiftly market conditions can impact the long-term viability of a device manufacturer. By the end of this course, the objective is for students to appreciate the complexity of the global wireless device industry. Students will understand the importance of device operating systems, carrier relationships and global markets. The wireless device industry will be clearer to students and they will be well positioned to pursue a career in wireless.

**Changes Effective Spring 2023:**

- Change Description  
- Change Prerequisite

**COMM 492: Internet Law and Policy (3 Credits)**  
*Old Listing Effective Through Fall 2022:*

Development in the law, policy, and business of Internet-mediated communications and commerce; emphasis on impact on existing legal, regulatory, and economic models. COMM 492 Internet Law and Policy (3) This course provides a forum for students to investigate and debate ongoing or anticipated conflicts in Internet-mediated telecommunications, information processing and commerce. The resulting confrontations may stem from technological innovation, real or perceived changes in the marketplace, or the imperatives of prevailing regulatory, political or economic philosophies. Conflict resolution often results from persuasive advocacy, coalition building, and accommodation of outsiders with new perspectives or entrepreneurial visions, rather than applying legal precedent or treaty interpretations. Internet mediation has the potential to change how we communicate, educate, inform, entertain, and transact business. Technological and marketplace convergence means that Internet mediation will have a profound impact on many legal, regulatory and economic constructs, i.e., the preexisting templates we use to describe and understand the communications process and impact on individuals and society. The course also will examine the growing body of cases that have addressed aspects of Internet-mediation in each of the following general categories: *Speech-commercial and political speech, obscenity, forums analysis* *Legal and Regulatory Consequences of Convergence-the juxtaposition of telecommunications and information processing technologies, markets and regulatory regimes* *Governance and regulation of the Internet*-whether the need exists for government intervention on such matters as numbering and domain registration *Intellectual Property Rights-the impact of Internet-mediation on copyright, trademark and patent laws *Electronic Commerce-the law and policy of Internet-mediated transactions, privacy and encryption concerns *Equity, Competition Policy and Consumer Protection Concerns-what, if anything, should governments do to remedy market failures.

**Changes Effective Spring 2023:**

- Change Description  
- Change Prerequisite

**CYBER 262: Cyber-Defense Studio (3 Credits)**  
*Old Listing Effective Through Fall 2022:*

This studio course teaches four basic hands-on cyber-defense skills: configuring a firewall, implementing a host-based intrusion detection software tool, using the Metasploit tool to do penetration testing, and implementing a network intrusion detection tool. The first cyber-defense skill is on configuring an ACL (Access Control List) firewall. This module provides the students with a practical exercise applying their analytical skills to properly configure the ACL of a firewall and to verify the correctness of their firewall configurations. Through this exercise, the students also learn firewall oriented network security policies. The second cyber-defense skill is on implementing a host-based intrusion detection software tool which can detect suspicious user sessions on a computer. This module provides the students with a practical exercise applying their programming skills to solve anomaly detection problems. The third cyber-defense skill is on using the Metasploit tool to do penetration testing. This module provides the students with a practical exercise applying their programming skills to do penetration testing. The fourth cyber-defense skill is on implementing a network intrusion detection software tool which can detect suspicious network flows. This module provides the students with a practical exercise applying their programming skills to solve signature-based intrusion detection problems.

**Changes Effective Spring 2023:**

- Change Description  
- Change Prerequisite

**CYBER 362: Cybersecurity Analytics Studio (3 Credits)**  
*Old Listing Effective Through Fall 2022:*

Cyberattacks involve advanced and sophisticated techniques to infiltrate corporate computers, networks and enterprise systems and critical infrastructures. Types of attacks include advanced malware, zero day attacks and advanced persistent threats. Advance warning about attackers and intelligence about the threat landscape is considered by many security leaders to be essential features in cyber-defense. The massive increase in the rate of novel cyberattacks has made data-mining-based analytics techniques a critical component in detecting security threats. Big data analytics in security involves the ability to gather massive amounts of digital information to analyze, visualize and draw insights that can make it possible to predict and stop cyberattacks. This studio course teaches fundamental data-driven cybersecurity analytics skills using programming skills acquired in earlier courses. The course will be divided into three modules. The first module prepares students for security analytics, by refreshing or making them familiar with two popular data analytics programming languages (e.g., R and Python). The second module focuses on understanding the key cybersecurity analytics process including data exploration, data visualization and data preparation and examining popular data mining algorithms such as linear and logistic regression, decision trees, support vector machine, and data mining.
and neural networks and similar techniques for security analytics. In the third module, students use analytics process and methods for selected cybersecurity problems, such as security breaches, ZeroAccess Infection, Log Analytics, Access Analytics and Web Hacking Analytics. Through this studio course, the students will gain concrete understanding of security analytics processes, methodologies and how to apply these concepts and tools to real-world cybersecurity. A major component of the course will be several hands-on exercises and a final team-based project.

Changes Effective Spring 2023:

- Change Prerequisite

CYBER 366: Malware Analytics (3 Credits)
Old Listing Effective Through Fall 2022:

Malware Analytics is an intermediate course required for students who are majoring in Cybersecurity Analytics and Operations. It is a three-credit hands-on course that teaches principles and practice of malware detection, analysis, and defense. The course begins by introducing the foundations of malware, including history, vulnerability, types, analysis methods, and defenses. It then builds on this foundation by teaching students how to address malware issues using analysis techniques such as reverse engineering and static program analysis, as well as how to use analytic approaches such as automatic malware trace classification and clustering. The course relies extensively on hands-on laboratory activities to help students obtain practical experience in malware analysis and analytics. Through this course, the students will gain concrete understandings on principles and practices of malware analysis and defense.

Changes Effective Spring 2023:

- Change Prerequisite

CYBER 440: Cybersecurity Capstone (3 Credits)
Old Listing Effective Through Fall 2022:

Cybersecurity Capstone is an advanced, culminating course for students who are majoring in Cybersecurity. This course provides the student with a practical exercise, designed by the instructor. The initial weeks of the semester provide the student with an overview of several analytic frameworks that are used in cybersecurity shops and organizations. Then, the student reviews specific technical analysis methods in malware, static and dynamic analysis, file system exploration, security log file analysis and network analysis. The findings from these analyses are then integrated into the analytic framework, gaps are identified, further analysis is conducted to fill the gaps. In the final weeks of the semester, students construct a high level briefing that supplies appropriate levels of technical detail to top level executives.

Changes Effective Spring 2023:

- Change Prerequisite

DANCE 221: Introduction to African Dance and Culture (1 Credit)
Old Listing Effective Through Fall 2022:

An introduction to African dance based in a holistic approach integrating music, movement, drama, costume, and vocalization.

Changes Effective Spring 2023:

- Change Credits
- Change Description

DANCE 370: Anatomy and Physiology for Performers (3 Credits)
Old Listing Effective Through Fall 2022:

The purpose of this course is to provide performers with anatomical theory and concepts to apply to movement. The course will progress through the body in systems as they relate to the biomechanics of movement and the body in performance. All body systems will be covered, but we will explore the musculoskeletal system in dept including specific bones and muscles most commonly used in the movement of the performing arts. Students will not only become proficient in the anatomy and physiology of the moving body, but also learn to apply this material to specific movements to facilitate the efficiency of movement in their area of interest. This course will be grounded in specific principles of western anatomy and physiology, but will also focus on application to analyze movements for the biomechanical basis that allows each movement, and the way the body system function and interact when performing. This knowledge is to aid in more efficient moving, performing, better body awareness/understanding, and injury prevention. The class covers different topics each week and will build upon practices learned in each previous session. Within each class period, lecture will be immediately followed by experiential hands on exercises and experiential learning application.

Changes Effective Spring 2023:

- Change Prerequisite

EDSGN 402: Materials and Manufacturing (4 Credits)
Old Listing Effective Through Fall 2022:

Students will study principles and properties of engineering materials and manufacturing processes with a focus on their appropriate selection in design. Based on these principles and properties, as well as hands-on laboratory experiences, students will develop systematic methods for matching material and process choices to the mechanical, thermal, electro-magnetic, and environmental constraints set by the technical requirements of a design problem or project. Knowledge of current manufacturing processes is required to align appropriate processes and materials with the requirements of designed products. Students will develop basic, practical knowledge and skills in operating manual and CNC machine tools. Both subtractive and additive manufacturing processes will be explored, and students will learn best practices for making informed choices between them based on design needs. Computer aided manufacturing will be introduced to provide background for future courses (e.g., senior capstone projects).

Changes Effective Spring 2023:

- Change Prerequisite

EDSGN 410: Robotics Design and Applications (4 Credits)
Old Listing Effective Through Fall 2022:

- Change Credits
Introduction to robotics, with emphasis on the design of robotics systems through multidisciplinary integration of electrical, mechanical, and software components. EDSGN 410 Robotics Design and Applications (4)
The objective of this course is to apply the basic concepts of electrical, mechanical, and software technologies to analyze, design and test a robotics system. This course will draw from skills in prior coursework in electricity and electronics, statics and dynamics, and software design. The course includes a discussion of present applications and future directions of robotics in such areas as manufacturing, science, transportation, military, healthcare, and entertainment. Students will be introduced to mechanical systems analysis, sensors, software development, electrical systems, control algorithms, testing, prototyping, design, modeling, and simulation of robot systems. Students will work in teams to design and prototype a robot to perform a task and to satisfy a set of design requirements. Professional communication and documentation will be included in the course experience. This course is a multi-disciplinary, project-based course and will have a substantial laboratory component supporting team-based design, integration and testing of a robot system.

Changes Effective Spring 2023:
- Change Prerequisite

EDTHP 115S: Competing Rights: Issues in American Education (3 Credits) (US) (BA) (GS)
Old Listing Effective Through Fall 2022:
An examination of educational issues relevant to democratic citizenship; emphasis is on understanding the relationship among politics, schools, and society. EDTHP 115S Competing Rights: Issues in American Education (3) (GS;US)(BA) FYS This course meets the Bachelor of Arts degree requirements. This course offers students a chance to practice solving skills necessary for active and responsible citizenship. Because the course requires students to engage in detailed analysis of contested issues, students will: acquire information about the history and governance of public schools; develop an understanding of ideologies underlying existing schools and proposed reforms; and, as a result, be better equipped to make informed choices as voters. Major topics include curriculum design; school accountability; education of minority populations; the conflict between students’ rights and the need of a school to maintain order; and the teaching of values. The course will require extensive reading, discussion (in-class and/or on-line), writing, and field research, to include such activities as interviewing teachers and politicians, or attending a school board meeting. Readings may include editorials, proposed legislation, court decisions, chapters from texts, essays and scholarly articles, and material from web sites of interested organizations (such as the National Education Association, the Christian Coalition, or the American Civil Liberties Union). After readings, analysis and discussion, students will prepare and defend a position on each issue, either individually or in groups, formally or informally, in speech or in writing. Students will be graded on their ability to support a particular stance with credible evidence, and on their ability to articulate the ideology underpinning a stance. Therefore, the ability to identify credibility of sources is inherent to success in the course. In general, this course draws upon concepts and information from history, political science, economics and philosophy as well as from education. As a General Education course, it seeks to help students broaden their perspective on social issues; to offer them practice in informed decision-making; and to understand and accept the responsibilities of active citizenship. The course might be particularly useful to social science majors because it will reveal interdisciplinary connections, while it will also be useful to the wider student body as a form of civic education.

Changes Effective Spring 2023:
- General Education Recertification

EDUC 477: Teaching Struggling Readers and Writers (3 Credits)
Old Listing Effective Through Fall 2022:
A comprehensive overview of learning problems and effective strategies for teaching K-12 students who have difficulties reading and writing. EDUC 477 Teaching Struggling Readers and Writers (3)EDUC 477 is a required course in the M. Ed. in Literacy Education Program. The primary goals of the course are to increase the participants’ understanding of special learning problems and to provide participants with teaching techniques for helping struggling K-12 readers and writers. Emphasis is placed on improving these students’ reading, writing, listening, and speaking skills.

Changes Effective Spring 2023:
- Title
- Abbreviated Title
- Description

ENGL 15A: Rhetoric and Composition (3 Credits) (US) (GWS)
Old Listing Effective Through Fall 2022:
English 15A is an intensive, rhetorically based experience in reading and writing that will prepare you both to understand the communications that surround you and to succeed in your own communication efforts. Thus, in this course, we will focus specifically on analyzing verbal and visual texts (our reading) as well as on producing such texts (our writing)—always in terms of rhetorical principles. Even if the term rhetoric isn’t familiar to you, you bring a good deal of rhetorical skill to this class: you already know how to gauge the way you perceive and produce language according to the speaker, the intended audience, and the purpose. You may not always gauge perfectly, your perception may not always be accurate, and your production may not always be successful—but you still often try to interpret and choose language that is appropriate to the rhetorical situation. When you do not succeed, you often try again. The goal of English 15A, then, is to help you build on what you already know how to do as you become a more confident reader and writer. You will become more attuned to your goals as a writer, more aware of the ongoing conversation surrounding the topic, and more resourceful in terms of the appropriate delivery of your information, the rhetorical appeals at your disposal, and the needs and expectations of your audience. You will also learn to research and synthesize multiple outside sources in order to support your arguments effectively and ethically. In other words, we hope you’ll come to write with skill, conviction, sophistication, and grace—if not immediately, then soon. In the process, you’ll learn how to read more critically as well.

Changes Effective Spring 2023:
- Change Description

ENGL 112: Pennsylvania Literature (3 Credits) (US)
Old Listing Effective Through Fall 2022:
An introduction to the literature that has been written by Pennsylvania authors from the colonial era through the present day. ENGL 112 Pennsylvania Literature (3) (GH;US) The purpose of this course is to introduce students to the variety of literature that has been
written and published by Pennsylvania authors from the colonial era through the present day. This course explores how the literature written in Pennsylvania relates to historical developments within the Commonwealth, and to literary, cultural, and historical developments across the United States and throughout the world. Toward that end, the course will bring to the British literary tradition. Students will be active learners through keeping reading journals, presenting background reports on the history of women in England, participating in small-group discussions about the texts, and writing 2 shorter essays and one longer research essay for the class. This course focuses on an area of British literature, which more traditionally structured courses tend to obscure. The course will be attractive to students from a variety of programs, including English majors, Women's Studies minors, and Interdisciplinary Humanities students. The course will be offered once every two years. Estimated class size 20.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Cross-Listed Courses: WMNST 489

Changes Effective Spring 2023:
- Change Description

ENGL 489: British Women Writers (3 Credits) (BA)
Old Listing Effective Through Fall 2022:

A study of selected British women writers. ENGL (WMNST) 489 British Women Writers (3) This course provides the opportunity to study writing by British Women from a historical perspective and to explore the views these women have of themselves as artists. The course will concentrate on a careful reading of works by a variety of authors. It will address the question of the role gender plays in the selection of literary forms and the development of character, theme, symbols, and rhetorical strategies. It will also explore what particular dimensions British women writers have brought to the British literary tradition. Students will be active learners through keeping reading journals, presenting background reports on the history of women in England, participating in small-group discussions about the texts, and writing 2 shorter essays and one longer research essay for the class. This course focuses on an area of British literature, which more traditionally structured courses tend to obscure. The course will be attractive to students from a variety of programs, including English majors, Women's Studies minors, and Interdisciplinary Humanities students. The course will be offered once every two years. Estimated class size 20.

Prerequisites: Enforced Prerequisite at Enrollment: ENGL 15 or ENGL 15A or ENGL 15S or ENGL 15E or ESL 15 or ENGL 30H or ENGL 30T or (ENGL 137H and ENGL 138T)

Cross-Listed Courses: WMNST 489

Changes Effective Spring 2023:
- Change Description

FRNSC 421W: Forensic Molecular Biology (4 Credits) (WF)
Old Listing Effective Through Fall 2022:

Concepts and application of molecular biology techniques to analyze biological evidence collected at crime scenes. FRNSC 421W Forensic Molecular Biology (4) Classroom discussions will focus on the application of biochemistry and molecular biology techniques in forensic DNA analysis. The course will start with a history of forensic biology techniques and move quickly to modern day techniques (e.g., STR analysis). Laboratory analysis will include population and mock evidence samples. Students will expand their knowledge of population genetics and fine tune their practical laboratory skills. Students will learn about laboratory safety, quality assurance and control, and ethics. They will discuss how evidence is presented in court and have the opportunity to present their data in mock deposition proceedings. Laboratory exercises will result in the preparation of courtroom ready materials (data, documents, and reports). Many of the classroom discussions will be problem solving exercises designed to emphasize specific applications of laboratory analysis. At the end of the course, students will have a strong understanding of forensic STR analysis of biological evidence, and how to convey their findings in written format. In the laboratory, students will have analyzed different sample types, interpreted DNA profiles (including mixtures), prepared laboratory reports and case files, and presented the evidence in mock testimony proceedings. As a result, students will have the basic skills necessary to work in a forensic biology or DNA crime laboratory. The course is relevant to any Forensic Science major who has an interest in obtaining employment in a local, state or federal law enforcement agency and/or crime laboratory facility. This is a 400-level forensics course that is required for students in the Forensic Science major who elect to complete the biology option.

Changes Effective Spring 2023:
- Change Description
- Add Cross-Listing

FRNSC 475: Forensic Science Seminar (1 Credit)
Old Listing Effective Through Fall 2022:

Presentation and discussion of special issues in forensic science; extension and application of background knowledge to unusual topics and cases.

Changes Effective Spring 2023:
- Prerequisite
- Add Recommended Preparation

GD 101: Design Foundation I (3 Credits)
Old Listing Effective Through Fall 2022:

Design Foundation I is a studio course covering the fundamental practices of a graphic designer. Through a series of exercises and projects, students will investigate methods of creative ideation, develop an awareness of the fundamentals of visual communication, learn the practical application of design principles and elements, and practice hand-based production techniques.

Changes Effective Spring 2023:
- Change Credits
- Change Description

GD 201: Typography I (3 Credits) (BA)
Old Listing Effective Through Fall 2022:

GD 201 Typography is a course in the fundamentals of graphic design. It includes the study of design principles, typefaces, type anatomy, and the varied use of typography in the visual communication process. In a broad
sense, typography, the indeed graphic design itself, is language-based, and it functions primarily as a visual representation of the spoken word. The knowledge and use of typography is arguably the most significant part of graphic design, a task that is almost always a visual orchestration of text and image.

Enforced Concurrent at Enrollment GD 200

Changes Effective Spring 2023:

• Change Title
• Change Abbreviated Title
• Change Credits
• Change Prerequisite
• Change Description

GER 83: First-Year Seminar in German (3 Credits) (GH) (BA) (IL) (US)

Old Listing Effective Through Fall 2022:

Germany’s cultural past and present. GER 083S First-Year Seminar in German (3) (GH;FYS;US;IL;BA) This course meets the Bachelor of Arts degree requirements. This course is designed to give the student an introductory overview of certain important aspects of German culture and its development during the past 1500 years. The topics selected will give the student an introduction to major periods and representative thinkers that have helped shape the destiny of German-speaking countries and much of Europe as well. As Goethe noted, our views of the past are a mirror in which we dimly see our own reflection. Serious examination of the issues raised in this course also result in learning something about one’s self and the world in which s/he live today. This course can be used to fulfill the General Education or Bachelor of Arts Humanities requirement, the Intercultural/International Competence requirement, and the first-year seminar requirement. A series of short papers will enable students to develop the skills of information gathering and written expression. The course grade will be based on oral participation and on the grade for the papers, which will be evaluated both for content and writing. This course will help to prepare students for a variety of additional courses in the fields of literature and German-speaking area studies. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests. The course will be offered once per year to an audience of 20 students.

Changes Effective Spring 2023:

• General Education Recertification

GER 175: Germanic Heroic and Medieval Literature in English Translation (3 Credits) (IL) (BA) (GH)

Old Listing Effective Through Fall 2022:

Germanic heroic and medieval courtly literature from 800 to 1350 focusing on the prevailing cultural, social, and legal conditions.

Changes Effective Spring 2023:

• General Education Recertification
• Change Description

GER 245: The Vikings (3 Credits) (GH) (BA)

Old Listing Effective Through Fall 2022:

Focus on the history of the Vikings from 800 to 1400 as conveyed to us in mythology, literature, and archaeology. Conducted in English.

Changes Effective Spring 2023:

• Change Description
• Add IL Attribute
• General Education Recertification

HDFS 129: Introduction to Human Development and Family Studies (3 Credits) (BA) (GS)

Old Listing Effective Through Fall 2022:

Introduction to psychosocial and family development at all stages of the individual and family life cycle. Students may take only one course for General Education credit from SOC 30 or HDFS 129. HDFS 129 Introduction to Human Development and Family Studies (3) (GS) (BA) This course meets the Bachelor of Arts degree requirements. This course provides a basic introduction to the concepts, theories, and research on human development as it occurs over the life span and in context. Students will be introduced to developmental tasks and challenges unique to each stage of human development from the womb through infancy, early and middle childhood, adolescence, emerging adulthood, middle age and old age. Beginning with the prenatal state and infancy, students will be introduced to the biological, emotional, cognitive, psychosocial, as well as the social, cultural and historical factors that influence growth and development across infancy, childhood, adolescence, adulthood, and advanced adulthood. Students will be introduced to basic concepts, theoretical orientations, and key empirical studies that inform human growth and development. Furthermore, attention is given to the central role of families and family life as a context for development. The formation of intimate relationships, marriage, marital processes, motherhood and fatherhood will be reviewed, as well as problems and challenges that families face such as financial stress, separation and divorce, abuse, and caregiving. Finally how families and family behavior are influenced by their communities, the larger culture, and other social and economic forces will be discussed. Students will be evaluated on the basis of tests, writing assignments, group projects, as well as participation in class discussions and occasional panels. This course will be offered five times a year at University Park, with enrollments in the 200-400 range during the semester and 20-30 in the summer sessions. Enrollments at other locations will vary from 15-200, depending on the campus and the time of the year. Students may take only one course for General Education credit from SOC 30 or HDFS 129.

Changes Effective Spring 2023:

• Description

HM 365: Organizational Behavior in the Hospitality Industry (3 Credits)

Old Listing Effective Through Fall 2022:

The human element is vital to the success of any organization, particularly in the hospitality industry. Toward this end, the purpose of this course is to provide students tools for successfully managing employees to enhance individual and organizational performance. Particular areas of focus will be on understanding employee motivation, individual differences, stress, diversity, group dynamics, and organizational culture and structure. Students will be familiarized with
these content areas and will apply them through project-based work, group assignments, experiential activities, and case studies. Regardless of the functional area in which students choose to work, they will be required to work with, manage, and lead other people. Therefore, an understanding of human behavior, its antecedents, and its consequences is vital to students' future success.

**Changes Effective Spring 2023:**
- Add General Education
- Change Course Number
- Change Title
- Change Abbreviated Title
- Change Description
- Remove Prerequisite

**INART 55: History of Electroacoustic Music (3 Credits) (BA) (GA)**

Old Listing Effective Through Fall 2022:

A history of electroacoustic music as a consequence of developments in culture and technology from 1880 to present. INART 55 History of Electroacoustic Music (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course focuses on the interrelationship and parallel development of technology, art and music from the earliest electronic devices to the current ubiquitous computer audio workstation and electronics dance music. Electronica is a multi-faceted genre that borrows from a number of past innovators. Its artists routinely acknowledge the influence, for example, of musique concrete, Karlheinz Stockhausen and the theremin, yet their audiences are often unaware of the roots of the music that occupies much of their recreational time and social energy. Electroacoustic music developed hand in hand with innovations in communications technology, which in turn influenced the way music was conceived and created. Too often, these correlations are not discussed. Both electrical engineers and musicians use filters, without necessarily realizing that they are both using the same technology for different purposes. FM synthesis revolutionized commercial electronic instruments in the 1980s, yet few people realize that this was the same form of modulation that was the basis of much radio broadcast technology. Many innovators in electronic music started out as inventors or engineers. The creation of electroacoustic music is one of the most fertile cross-disciplinary fields of the twentieth (and now twenty-first) centuries. It has affected the production and reception of music indelibly, and is now a vital component of digital multi-media art, a leading trend of the new century. The course asks students to be aware of vital technological developments in audio (the evolution from the Edison phonograph to the CD player), electronics (the evolution from the spark gap oscillator to the vacuum tube to the transistor to the microprocessor), cultural movements (from impressionism and Romanticism to modernism to postmodernism), and to become sensitized to the chief innovators in the field (the differences in the music of Schaffer, Stockhausen, Carlos, Chowning, and others). They are made aware not only of names and terms, but also taught to recognize differences in the different sounds of different composers and styles. The course has been offered two semesters as a 297 offering. It is designed so that it may eventually be offered completely online. The text is online, and the listening assignments are also posted at the PSU Digital Music Library. Grading will be based on weekly quizzes that ask for definitions and short answers, four tests that require essays and identification of listening examples, and two papers focused on different compositions/composers.

**Changes Effective Spring 2023:**
- General Education Recertification
- Change Title
- Change Abbreviated Title
- Change Description

**INART 100: Seminar in Integrative Arts (3 Credits) (BA)**

Old Listing Effective Through Fall 2022:

A study of various arts with emphasis on comparison, contrast, and other aspects of interrelation. Topics will change each semester. INART 100 Seminar in Integrative Arts (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. INART 100 is a semester-long seminar that explores a theme or topic through selected works of the visual or performing arts. Various arts will be examined with emphasis on comparison, contrast, and other aspects of interrelation. Although topics will change each semester, they will always be bound to broad concerns in the arts that are shared or common. The approach will be strictly interdisciplinary with emphasis, on discussion and the direct experience of art. INART 100 is a General Education Arts offering (GA) and, for selected topics, will satisfy the Intercultural and International Competence Requirement (GI). At University Park, the course is built around twelve to thirteen motion pictures shown as part of the Palmer Museum of Art’s film series, a gallery exhibition at the Palmer, and two or three performances at the Center for the Performing Arts. Students are required to attend all of these events and showings. The film series and the gallery exhibition are free. Tickets for the two events at the Center for the Performing Arts must be purchased. Attendance will constitute 20% of the semester grade. Each week, there will be a required online discussion based on the “Commentaries” associated with the event or exhibition of that week. These “Commentaries” are included with the background information on the events and exhibitions contained in the course web site. Discussions will last for one week and all students are required to participate in all online discussions. Participation in discussions will constitute 50% of the semester grade. The remaining 30% of the semester grade will be based on a series of objective tests based on the background materials that relate to each film, performance, or gallery exhibition required in the course.

**Changes Effective Spring 2023:**
- Change Description

**INART 210: Integrative Approaches to Computer-Aided Music Composition (3 Credits) (GA)**

Old Listing Effective Through Fall 2022:

Interdisciplinary introduction to music composition using software to assist with notation; historical perspectives drawn from art, dance, theater, and literature. INART 210 Integrative Approaches to Computer-Aided Music Composition (3) (GA) INART 210 is an interdisciplinary introduction to music composition using software to assist with notation. Historical perspectives are drawn from period music, art works, dance, theater, and literature. Student composers are required to complete five collaboration projects with students from other arts areas. Through collaboration, student composers will be able to develop a more informed critical point of view about music composition as an art and important form of human expression. Collaborations are encouraged with student choreographers, filmmakers, animators, visual artists and actors, including improvisation and interactive techniques. Students will have
access to music classroom facilities and Macintosh computer lab for score and sound editing; semester end recording of compositions.

Changes Effective Spring 2023:

- General Education Recertification
- Change Description

INTST 100: Introduction to International Studies (3 Credits) (GS) (IL) (BA)
Old Listing Effective Through Fall 2022:

An introductory multidisciplinary course designed to familiarize students with critical international issues. INTST 100 Introduction to International Studies (3) (GS)IL)(BA) This course meets the Bachelor of Arts degree requirements. This is an interdisciplinary course designed to provide students with an introduction to a range of global issues. The course will emphasize the themes of international interdependence and globalization and their development over time. A key component of this course is cultural diversity and the connecting international and domestic issues, particularly those of race and culture. In both their written and oral work, students will be required to relate international issues to their own fields of study. The disciplines involved are mainly political science and economics, ecology, history, and cultural studies.

Changes Effective Spring 2023:

- Recertification

IT 83: First-Year Seminar in Italian Literature, Film, and Culture (3 Credits) (GH) (IL) (BA)
Old Listing Effective Through Fall 2022:

Introduction to the study of Italian literature, film, and culture. IT 083S First Year Seminar in Italian Literature, Film, and Culture (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. The first-year seminar will introduce students to the study of Italian literature, film and culture in their first year at Penn State. Students will read significant texts (in English), view videos (with subtitles), listen to music and explore Italian thought and culture in general. These experiences will help prepare them for additional courses in literature and in Italian, but will also serve as an introduction to things Italian, and as a point of comparison with U.S. culture. In addition to the academic topic and issues this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools and resources available to them including the opportunity to develop relationships with faculty and other students who share their academic interests. This course satisfies both the first-year seminar and a General Education humanities or Bachelor of Arts humanities requirement. We will offer the course once a year with enrollment limit of twenty students.

Changes Effective Spring 2023:

- Recertification

KINES 47A: Beginning Swimming (1.5 Credits) (GHW)
Old Listing Effective Through Fall 2022:

KINES 47A introduces students who are beginning swimmers to the performance of swimming safety and skills that can be used as lifelong activities. Students will learn and practice a progression of swimming related skills designed to acclimate the new or beginning swimmer to the aquatic environment. An introduction to personal safety skills provides the students with knowledge necessary for safe behavior in an aquatic setting. The course provides basic knowledge of hydrodynamic principles that will identify a kinetic awareness at various water depths. KINES 47A may also introduce students to a variety of aquatic fitness activities that include jogging in the water and water aerobics. As swimming and basic aquatic fitness may play a role in lifetime activity, fitness, and wellness, students learn valuable personal fitness knowledge and principles and how to implement them. Though the importance of water safety and basic survival tactics is paramount to the course, so too is the appreciation of self-care and wellness over the lifespan and possessing the tools to have a rich quality of life.

Prerequisite: Enforced Prerequisite at Enrollment: students should be comfortable in shallow and deep water and be moderately proficient in front crawl, elementary backstroke, sidestroke, and breaststroke

Changes Effective Spring 2023:

- Remove Prerequisites
- Add Recommended Preparation

KINES 76: Introduction to Tai Chi Ch’uan (1.5 Credits)
Old Listing Effective Through Fall 2022:

A course designed to introduce students to Tai Chi Ch’uan, a traditional Chinese system of personal cultivation and self-defense. KINES 076 Introduction to Tai Chi Ch’uan (1.5) (GHA) This course will introduce students to Tai Chi Ch’uan a health and martial arts system originating from China, and based on more than five thousand years of observation and practice culled from the major Chinese Schools of philosophy and Chinese medical practice. It is seen as a physical embodiment of the supreme Taoist principles. Tai Chi has become very popular in the rest of the world as a means for attaining physical health and vitality and as a formidable defensive martial art. Tai chi has been the focus of research in China and the west and has been found extremely beneficial for balance, arthritis, Parkinson Disease and for general health and well being. Students will be introduced to the principles of Tai Chi Ch’uan by learning Tai Chi relaxation techniques and warm ups to relax the joints, right body alignment and Qi Gong exercises to promote the flow of chi or life energy through the body and the internal organs. They will learn and become proficient in the performance of the first part of the Tai Chi Yang form, which is the heart of the practice. The students will also explore the martial aspects of Tai Chi Ch’uan through the practice of push hands, a two person play, and through the demonstration and introduction to the Tai Chi Sword. The martial art aspects will enrich the students experience and demonstrate the interaction of the student’s chi with his or her environment. Students are encouraged to practice daily outside of class and to record their practice and observations in a journal. At the end of the course they will be required to perform the Tai chi form and related exercises on their own. Evaluation is based on participation, class journal and observations, and the final individual performance of the Tai Chi form and related exercises. No special facilities are required for this course. The department plans to offer one section every fall and spring semesters with an anticipated enrollment of 25 students per section.

Changes Effective Spring 2023:

- Description

LER 197: Special Topics (1 Credit) (BA)
Old Listing Effective Through Fall 2022:
Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

**Changes Effective Spring 2023:**

- Change Course Abbreviation
- Change Description

**MATSE 202: Introduction to Polymer Materials (3 Credits)**

Old Listing Effective Through Fall 2022:

The materials science of organic or soft materials with an emphasis on synthetic and natural polymer. MATSE 202 Introduction to Polymer Materials (3) Materials made from many types of natural organic materials, (cotton, wool, hemp, leather, etc.) have been with us throughout recorded history and have played crucial roles in the rise of civilizations and the economies of tribes and nations. Over the course of the last 100 years or so the development of synthetic organic materials, particularly polymers, has transformed the way we live. Modern transportation systems, much of contemporary medicine and the entire electronics and computer industry would not be possible without these materials. In order to understand their nature and provide a basis for a more in-depth understanding of these materials provided by courses with a more specific focus, why they are ubiquitous in modern society, this course will provide students with a basic knowledge of the structure, synthesis and properties and processing of these materials, starting with a review of atomic and molecular structure and proceeding through basic elements of the chemical synthesis, structure, mechanical properties and processing of these materials. Students will discover the commonalities and differences between synthetic polymers, such as polyesters and nylons, and natural or biological polymers, such as cotton and silk. A comparison will also be made between the mechanical properties of "hard", inorganic materials such as metals and ceramics, and "soft", organic materials such as polymers. The primary intended audience are undergraduates in Materials Science and Engineering. This course will provide a necessary overview of organic materials for those students who will focus on inorganic materials in the major and also provide an introduction to organic materials for those students who will specialize in polymers and other organic materials. It is also anticipated that students in other disciplines who want to obtain an overview of the science and engineering of organic materials would want to take this course.

**Changes Effective Spring 2023:**

- Change Prerequisite

**MATSE 415: Introduction to Glass Science (3 Credits)**

Old Listing Effective Through Fall 2022:

Composition, melting, fabrication, properties, and uses of glass; combinations of glass with metals and other materials. MATSE 415 Introduction to Glass Science (3) This course aims to explain the unique characteristics of the glassy state, and to describe their role in the processing, application, and engineering performance of amorphous materials and glass products. The course teaches fundamental concepts of amorphous structure, and then utilizes them to establish structure-property relations in various glass systems. The viscosity, thermal expansion, chemical durability, strength behavior, and optical properties of silicate-based glasses are emphasized, although the important properties of phosphate, halide, and chalcogenide glasses are not overlooked. Also included are phenomenological descriptions of glass formation, liquid-liquid immiscibility, viscous flow, structural relaxation, stress relaxation, and crystallization in glass. Various methods for the synthesis of glass are reviewed (melting, CVD, and sol/gel), along with important manufacturing processes for commercial glass products. Throughout the course, the applications of glass and glass components in electronics, photonics, biomedicine, transportation, and energy are described to rationalize the use of glass (i.e., the materials selection), the specific glass composition, and the associated processing method.

Prerequisite: MATSE 400, MATSE 401, MATSE 402, MATSE 462

**Changes Effective Spring 2023:**

- Change Prerequisite

**MATSE 427: Microstructure Design of Structural Materials (3 Credits)**

Old Listing Effective Through Fall 2022:

Phase transformations in ferrous and nonferrous metal alloys and structural ceramics; processing, structure, and property relationships; heat treatment of structural metals; microstructure development.

Prerequisite: MATSE 201, MATSE 259 or equivalent

**Changes Effective Spring 2023:**

- Change Description
- Change Prerequisite

**MATSE 446: Mechanical and Electrical Properties of Polymers and Composites (3 Credits)**

Old Listing Effective Through Fall 2022:

The mechanical (viscoelastic) and electric properties of polymers and poly-based composites. MATSE 446 Mechanical and Electrical Properties of Polymers and Composites (3) This course is an introduction to the mechanical and electrical properties of polymers and polymer-based composites: focusing on the importance of molecular structure, rubber
Prerequisite: MATSE 202 or MATSE 443

Changes Effective Spring 2023:

• Change Title
• Change Description
• Change Prerequisite

MATSE 460: Introductory Laboratory in Materials (1 Credit)
Old Listing Effective Through Fall 2022:

An introduction to comparative physical properties and characteristics of various materials including mechanical, electrical thermal, and structure/ morphology. MATSE 460 Introductory Laboratory in Materials (1) This is a lab course whose goal is to provide an integrated approach to materials science and engineering. Any individual lab will consist of a number of elements, initially students will be provided with a presentation summary of the proposed lab. This could be film, video, web delivery, hard copy or live presentation. Presentation time will be limited but should be reviewed before students attempt the hands-on lab. All labs will examine a variety of different materials including metal, ceramics and polymers. Labs will be integrative in the sense that they will include use of spreadsheets, data plotting, and presentation of results as written reports and/or as a 'PowerPoint' presentation. The labs selected have been chosen specifically because they cut across all current basic materials disciplines. These labs are intended to provide students with a broad appreciation of the range and contrast of material structures and properties, in order that students more fully appreciate the breadth of material science and engineering.

Prerequisite: MAT 201

Changes Effective Spring 2023:

• Change Prerequisite

MATSE 471: Metallurgy Laboratory I (1 Credit)
Old Listing Effective Through Fall 2022:

A laboratory integrating experimental aspects of material contained in MATSE 402, 413, and 410, e.g. phase diagram determination, solidification micro-structures, etc. MATSE 471 Metallurgy Laboratory I (1) This course is largely an introduction to basic laboratory characterization techniques (optical microscopy, scanning electron microscopy, image analysis, hardness testing, thermal analysis). However, it also applies those characterization techniques in the context of Design of Experiments. This laboratory class also contains significant drills in technical writing.

Prerequisite: MATSE 462 AND MATSE 430

Corequisite: MATSE 425

Changes Effective Spring 2023:

• Change Title
• Change Abbreviated Title
• Change Description
• Change Prerequisite

MATSE 473: Polymeric Materials Laboratory—Synthesis (1 Credit)
Old Listing Effective Through Fall 2022:

Principles and practices of polymerization, including condensation, free radical (bulk, solution, suspension, emulsion), ionic, and Zeigler-Natta procedures. MATSE 473 Polymeric Materials Laboratory—Synthesis (1) This laboratory course provides students exposure to a variety of synthetic techniques basic to Polymer Science. From the polymerization of styrene to the preparation of urethane foams, students will see the role of various synthetic methods and chemistries play in determining the final form and properties of a given polymer. Students also learn the polymer structure characterization by examining the produced polymers with proper tools and instruments.

Prerequisite: MATSE 443

Changes Effective Spring 2023:

• Change Title
• Change Abbreviated Title
• Change Prerequisite

MATSE 496H: Independent Studies (3 Credits) (H)
Old Listing Effective Through Fall 2022:

Creative projects, including research and design, which are supervised on an individual basis and which fall outside the scope of formal courses.

Changes Effective Spring 2023:

• Change Credits

ME 340: Mechanical Engineering Design Methodology (3 Credits)
Old Listing Effective Through Fall 2022:

The design process; problem definition, conceptual design, system design, detail design, evaluation and test, implementation, documentation and communication. M E 340 Mechanical Engineering Design Methodology (3) This course is intended to provide mechanical engineering students with the fundamental tools to produce an effective design solution in a realistic professional environment with conflicting customer needs and technical capabilities. The students will identify the system design targets through interaction with the ‘customer’, develop multiple conceptual designs, select the best design solution and produce a functional prototype. The course is project driven with significant input from the students in defining the work objectives and goals. Initially several mini-projects will be assigned with specific objectives such as identifying customer needs, quantifying technical design specifications and decision making. The course culminates with a student team based design competition. The competition provides an opportunity to apply the design process to an open-ended mechanical engineering problem.

Prerequisite: EDSGN 100; Prerequisite or Concurrent: (ME 320 or BME 409) and ME 360

Changes Effective Spring 2023:

• Titles
• Prerequisites

ME 345: Instrumentation, Measurements, and Statistics (4 Credits)
Old Listing Effective Through Fall 2022:

Fundamentals of statistics, sensors, instrumentation, and measurement of mechanical phenomena such as temperature, flow, pressure, force, stress, displacement, and acceleration. M E 345 Instrumentation, Measurements, and Statistics (4) This course is required for all mechanical engineering students, and is taken in the junior year. It serves...
as an introduction to the fundamental principles of instrumentation and measurement, along with statistics, and integrates and applies what the students have learned in their electrical engineering course. The course includes a 3-hour-per-week hands-on laboratory where students apply the material learned in the lecture. For many students this is the first time they have actual hands-on experience with electronics and measurement equipment, such as oscilloscopes, breadboards, function generators, digital data acquisition systems, integrated circuits strain gages, displacement meters, thermocouples, tachometers, dynamometers, filters, volume flow meters, velocity meters, pressure transducers, etc. Students learn not only how to use these devices in the lab, but also the fundamental principles of their operation. Statistical analysis is integrated into the course, especially in the hands-on laboratories, where statistics is used to analyze and interpret acquired data.

Concurrent Courses: Enforced Concurrent at Enrollment: EE 211 or EE 212

Changes Effective Spring 2023:

- Change Description
- Change Prerequisite

ME 360: Mechanical Design (3 Credits)
Old Listing Effective Through Fall 2022:

Specification of components such as shafts, bearings, and power transformers; optimal designs for operational, environmental, and manufacturing requirements. ME 360 Mechanical Design (3) This course is required for all mechanical engineering students, and is taken in the junior year. It is an introduction to analysis and design of mechanical components. It helps provide practical insight into theory provided by prerequisites in engineering mechanics and materials science. Students initially perform yielding and fatigue failure predictions for general structural elements and then focus on specific mechanical components such as gears, fluid film bearing, rolling element bearings, screws, shafts and springs. Use and interpretation of finite element analyses (FEA) are also introduced. The overall goals are for students to learn to make basic design decisions regarding the suitability of different materials in mechanical components (e.g. steel versus aluminum); and to make basic design decisions regarding the suitability of different components in a mechanical system (e.g. ball bearings versus fluid film bearings).

Prerequisites: Enforced Prerequisite at Enrollment: EMCH 213

Enforced Concurrent at Enrollment: CMPSC 200 or CMPSC 201

Changes Effective Spring 2023:

- Change Description

ME 367: Machine Design (3 Credits)
Old Listing Effective Through Fall 2022:

Design and selection of machine components and connections. Stress analysis and modes of failure of materials used in machine components. ME 367 Machine Design (3) This course introduces students to the process for selection, design and failure analysis of various common machine elements. This course will give students the foundation to design mechanical systems and the tools to design, select, or analyze machine components for practical applications necessary for their senior design projects and other mechanical engineering electives. Subjects include the reliability, safety factors, and the design of machine elements including shafts, roller bearings, brakes, clutches, gears, belt and chain drives, and additional topics such as screws, springs, journal bearings, and connections. Both static and cyclic loading are considered as part of the design and analysis process. Extensive use is made of material properties, design tables, figures and graphs to assist in the design and analysis process. The course includes a comprehensive project that incorporates several of the topics covered in the course in the design of a mechanical system. The goal of the project is for students to learn how various machine components and procedures are used in the Machine Design process as well as giving them further experience in teamwork and presentation skills.

Prerequisites: Enforced Prerequisite at Enrollment: ME 349 Enforced Concurrent at Enrollment: MATSE 259

Changes Effective Spring 2023:

- Change Description

ME 400: Thermodynamics of Propulsion and Power Systems (3 Credits)
Old Listing Effective Through Fall 2022:

Analysis and modeling of propulsion and power systems, including combustion, compressible flow through nozzles, chemical equilibrium, and moist air systems. M E 400 Thermodynamics of Propulsion and Power Systems (3) This course is specifically designed to take advantage of the senior level standing of the student by providing an integrative modeling and analysis approach to thermal-fluids systems. The course emphasizes the integration and application of fundamental principles of mass, momentum, and energy conservation to relatively complex systems. These systems include spark-ignition and diesel engines, gas-turbine engines for power production, and turbojet engines. The integration of the topics of combustion, compressible flow, and psychrometrics allow these systems to be analyzed in their totality. Emphasis is on creating engineering models of these systems. The course aims to integrate previous knowledge and develop skill in ‘thinking like an engineer.’

Concurrent Courses: Enforced Concurrent at Enrollment: ME 410

Changes Effective Spring 2023:

- Change Description

ME 431: Internal Combustion Engines (3 Credits)
Old Listing Effective Through Fall 2022:

This course is specifically designed to take advantage of the senior level standing of the student by providing an integrative modeling and analysis approach to thermal-fluids systems. The course emphasizes the integration and application of fundamental principles of mass, momentum, and energy conservation to relatively complex systems. These systems include spark-ignition and diesel engines, gas-turbine engines for power production, and turbojet engines. The integration of the topics of combustion, compressible flow, and psychrometrics allow these systems to be analyzed in their totality. Emphasis is on creating engineering models of these systems. The course aims to integrate previous knowledge and develop skill in "thinking like an engineer."

Changes Effective Spring 2023:

- Change Description
- Add Prerequisite

ME 432: Rocket Propulsion (3 Credits)
Old Listing Effective Through Fall 2022:
Design and performance of rocket propulsion components and systems; thermodynamics, solid and liquid fuels, heat transfer, materials, controls, and instrumentation.

Prerequisites: Enforced Prerequisite at Enrollment: ME 410

Changes Effective Spring 2023:

• Change Description
• Change Prerequisite

ME 448: Engineering Design Concepts (3 Credits)
Old Listing Effective Through Fall 2022:

Engineering design and modelling, engineering economic analysis techniques, technical communication skills, project planning and design. M E 448 Engineering Design Concepts (3)This course is the first of a two-part sequence of courses that make up the capstone design experience in the ME BD major (the second course is M E 449, Mechanical Design Projects). In this course students study the engineering design process, begin working on their senior design project, and learn about professional topics related to industry. Topics in the engineering design process include customer needs identification, development of engineering specifications, concept generation, concept selection, costing, and project planning. Professional topics include communication, team work, ethics, safety, sustainability, globalization, and engineering economics. Students are evaluated on the design process and professional topics through assignments and quizzes. A major component of the course is to begin work on a capstone design project. Students work in teams of 3 to 4 on an industrially-sponsored project or other project approved by the faculty. The student teams work with the sponsor to develop specifications and a project plan, perform background research necessary to fully understand the project, begin to solve the problem, and make two presentations during the semester. The first presentation is a formal project proposal; the second presentation at the end of the semester is a progress report. Students are evaluated on both their technical and presentation skills, as well as their ability to function as a team. This course is required in the Behrend Mechanical Engineering (ME BD) program, and integrates material from a number of previous courses.

Prerequisites: Enforced Prerequisite at Enrollment: ME 380 and seventh-semester standing.

Enforced Concurrent at Enrollment: ME 367 and ME 410

Changes Effective Spring 2023:

• Change Description

ME 460: Advanced Machine Design Problems (3 Credits)
Old Listing Effective Through Fall 2022:

This course is designed to approach and analyze fundamental problems in the design of advanced level machine components and systems. It integrates advanced concepts in fatigue, vibrations, mechanics of materials and tribology for component and system level reliability. The course emphasizes elements of power transmission through detailed discussion on kinematics and reliability-based design ofcams, flywheels, transmission couplings and gear chains. Example cases involve single and multiple cylinder automotive engine system with analysis of dynamics and balancing, power transmission through both flexible and rigid elements as well as different kinds of differentials built of spur, helical, bevel and worm gears. Another thrust is the application of tribology on machine design with special focus on hydrostatic and hydrodynamic bearings. Through case studies drawn from design and failure from real life systems, the course develops knowledge and skills for translating design concepts from components to system level.

Prerequisite: ME 360 and ME 370

Changes Effective Spring 2023:

• Abbreviated Title

ME 490: Professional Development for Mechanical Engineers (0.5 Credit)
Old Listing Effective Through Fall 2022:

ME 490 Professional Development for Mechanical Engineers (0.5) provides a look at foundational business issues of importance to new engineers: creating value, organizational models, financial statements, and intellectual property. Students will get a preview of their role in today’s global workplace and how they can position themselves for success. Strategies for recognizing opportunities and continually growing skills and knowledge is emphasized. The course meets once weekly for 8 weeks.

Changes Effective Spring 2023:

• Change Prerequisite

ME 491: Bioengineering Applications of Mechanical Engineering (3 Credits)
Old Listing Effective Through Fall 2022:

Application of mechanical engineering knowledge in the context of life sciences. M E 491 Bioengineering Applications of Mechanical Engineering (3)The primary objective of this course is to teach students how to apply mechanical engineering knowledge in the context of life sciences. Fundamental mechanical engineering knowledge such as solid mechanics, fluid mechanics and system dynamics will be reviewed first. Then, different topics in bioengineering, such as motion biomechanics, physiological fluid mechanics, modeling of physiological systems, and rehabilitation engineering will be discussed. Throughout the semester, students also work in groups to solve several simplified real-life bioengineering projects. Students will be evaluated through these projects plus a final project presentation, an application presentation and several homework assignments. This course is a technical elective in the ME BD program and allows students who have completed their junior year to learn the application of mechanical engineering knowledge in the life science context.

Prerequisites: Enforced Prerequisite at Enrollment: EE 211 and ME 320 and ME 357 and EMCH 213 and ME 349 or permission of program

Changes Effective Spring 2023:

• Change Description

MGMT 409: Project Management for Engineers (3 Credits)
Old Listing Effective Through Fall 2022:

The course provides a real-time experience to students in engineering and engineering technology in project management with a focus on leadership behavior and decision making.

Prerequisites: 5th Semester standing

Changes Effective Spring 2023:
MGMT 418: Project Planning and Resource Management (3 Credits)
Old Listing Effective Through Fall 2022:

Advanced course in project management focusing on a more in-depth approach to project planning and scheduling and resource management. MGMT 418 Project Planning and Resource Management (3) Project Planning and Resource Management is a more indepth look at some of the most important aspects of project management; the ability to accurately plan and schedule projects using the latest and most accurate methods. Further, the course addresses resource management within the context of planning, noting the important linkage between these two elements. Accurate planning can be done through a variety of techniques, including CPM, PERT, simulation, linear programming and other optimization methods. Students will learn when each of these methods are most useful, benefits and drawbacks of various planning and resource management techniques, and how to apply these techniques to their projects. In addition, students will learn about different types of project risks, and techniques for analyzing and managing these risks. Because the focus is hand-on and problem-based. The role of the instructor in this course is to demonstrate these analytical techniques through classroom exercises and assignments and software packages, including MS Project, simulation, and Analytic Hierarchical Process (AHP).

Prerequisites: Enforced Prerequisite at Enrollment: SCM 301 and (MGMT 409 or MGMT 410 or BA 421)

Changes Effective Spring 2023:

- Change Abbreviated Title

MUSIC 87: Mallet Ensemble (1 Credit) (BA)
Old Listing Effective Through Fall 2022:

Study and performance of music for keyboard percussion instruments.

Changes Effective Spring 2023:

- Credits
- Add Prerequisites

MUSIC 468: Acting for Singers (2 Credits)
Old Listing Effective Through Fall 2022:

To help students develop authentic and specific characters/portrayals on stage through physical and emotional awareness. MUSIC 468 Acting for Singers (2)This is a course teaching singers the fundamentals of acting. All types of stage work related to vocal music will be explored from performing in recitals and concerts to the opera and excerpted scenes. The objective of the course is to make singers more comfortable on stage and more realistic/believable in their performances/presentations. This course differs from acting courses offered in other areas because the singer has restrictions placed upon him due to the requirements of the music, especially in regard to timing and the sense of time, and the use of texts which are often in foreign languages. The course will be offered to music majors currently studying voice at an advanced level (V220J or higher) so that vocal technique will not be the main issue; this includes students enrolled in the BM, BMA, BA, and BME programs. Exceptions can be made by permission of the instructor. The course is an elective 2 credit course which students may repeat for a maximum of 4 credits. An accompanist will be present to accompany students in their song/aria presentations. Every class meeting will begin with warm-up exercises and then continue with further exercises focusing on helping students develop a sense of timing and enabling them to explore the ‘beats’ (or central topic) of a scene. Emphasis will be placed on learning how to prepare for a scene, analyze it, and determining the goal(s) of the character. The students will be encouraged to learn how to be specific in their acting and to learn what will ‘read’ to an audience while accurately reflecting the portrayed emotion. Some work will be solo work, but there will also be opportunities to work with partners. Improvisation will also be incorporated.

Prerequisite: Must be currently enrolled for voice jury track at the level of V220 or higher or register with permission of the program

Changes Effective Spring 2023:

- Change Description
- Change Prerequisite

NAVSC 103: Leadership and Management (3 Credits)
Old Listing Effective Through Fall 2022:

Managerial thought and behavioral theories, with emphasis on how they apply to the naval organization. NAVSC 103 Leadership and Management (3) The curriculum for Leadership and Management provides the basis for the development of effective leadership and managerial competence. Under scoring interactive learning and designed to be taught by experienced, commissioned officers of the U.S. Navy and Marine Corps in order to provide Fleet-based examples, this course examines fundamental tenets of leadership and management in the context of the theories and principles of individual and group leadership with emphasis on how they apply to naval forces. Topics include self-leadership, self-management and team leadership while students refine and further develop their understanding of personal strengths, values and growth opportunities in the context of team, group and organizational leadership, as well as through the creation of a leadership vision and professional development plan. Students will develop knowledge, abilities and skills that will assist them as future officers to successfully operate in the context of complex military environments around the globe.

Changes Effective Spring 2023:

- Change Number

NAVSC 201: Sea Power and Maritime Affairs (3 Credits)
Old Listing Effective Through Fall 2022:

Historical evolution of sea power and its effects on world history; current U.S. maritime strategy for employment of naval forces. NAVSC 201 Sea Power and Maritime Affairs (3) The curriculum for Sea Power and Maritime Affairs provides a U.S. Naval history survey emphasizing major developments in strategy, tactics, technology and the effects of political climate thereon. Primary topics include: significant naval engagements and milestones, prominent leaders and their contributions, the role of sea power in national policy and diplomacy in both peacetime and war through the present day. The course also studies Mahan’s naval strategy along with the effects of maritime policy on global stability and the importance of Joint Warfare and power projection.

Changes Effective Spring 2023:

- Change Number
NURS 350: Professional Role Development II: Ethics, Legal and Genetic Issue (2 Credits)
Old Listing Effective Through Fall 2022:

The study of the interaction of ethical, legal, and genetic concepts as they apply to current health care practice. NURS 350 Professional Role Development II: Ethics, Legal and Genetic Issues (2) NURS 350 is the second of three professional role development courses and addresses the interaction of ethical, legal and genetic concepts as they apply to current health care practice. Upon completion of the course the student will be able to define the fundamental ethical theories; define and integrate into evidence based practice the basic ethical concepts as they relate to nursing; state the American Nurses’ Association Code of Ethics for Nurses; demonstrate ethical behaviors such as honesty, integrity, responsibility, and dependability in clinical practice and everyday life; define and describe the concepts of standards of care and scope of practice; analyze nurse practice acts as they pertain to licensure and scope of practice; define the concepts of negligence versus malpractice; define and distinguish between the concepts of informed consent, patient self-determination, right of refusal, and advance directives (such as living wills, durable power of attorney, and do not resuscitate orders); analyze the role of advocacy from an ethical and legal perspective; communicate effectively (including the use of new technologies) with patients and families regarding legal, ethical, and genetic issues; describe the concept of confidentiality from ethical and legal perspectives; identify the impact genetics has played in the practice of health care; describe the historical to current research findings in genetics that have or may change health care practice guidelines; identify the role ethics, legal issues, and genetics plays in providing health care to culturally sensitive populations; analyze and discuss historical and current biomedical dilemmas utilizing various ethical, legal and genetic perspectives. Teaching strategies include lecture, discussion, audiovisuals, small group activities, role-playing and group presentations. The course is offered spring semester and enrollment is limited to nursing majors.

Prerequisites: Enforced Prerequisite at Enrollment: NURS 305 and Enforced concurrent at enrollment: NURS 306 and NURS 320.

Changes Effective Spring 2023:

• Description
• Prerequisites

OT 212: Occupational Therapy for Child & Adolescent Health (3 Credits)
Old Listing Effective Through Fall 2022:

Students will utilize clinical reasoning to facilitate occupation-based interventions that address client factors as related to conditions associated or the prevention of such with children and adolescents. Focused interventions will include areas of Course Justification occupation, performance skills, performance patterns, contexts and environments. Students learn about and gain skills related to occupational therapy evaluation, intervention, and documentation related to conditions associated with children & adolescents.

Prerequisites: Enforced Prerequisite at Enrollment: OT 205 and OT 207 and OT 209 and OT 195E

Concurrent Courses: OT 210W and OT 214 and OT 216 and OT 295E

Changes Effective Spring 2023:

• Credits

OT 214: Occupational Therapy for Psychosocial and Behavioral Health (3 Credits)
Old Listing Effective Through Fall 2022:

Students will utilize clinical reasoning to facilitate occupation-based interventions that address client factors as related to psychosocial and behavioral health. Focused interventions will include areas of occupation, performance skills, performance Course Justification patterns, contexts and environments. In-depth work will be engaged, as related to psychosocial and behavioral health interventions and programming in various clinical and community settings with individuals and groups. Overall, students will learn about and gain skills related to occupational therapy evaluation, intervention.

Prerequisites: Enforced Prerequisite at Enrollment: OT 205 and OT 207 and OT 209 and OT 195E

Concurrent Courses: OT 210W and OT 212 and OT 216 and OT 295E

Changes Effective Spring 2023:

• Credits

OT 295E: Fieldwork Level I Experience in Occupational Therapy (1 Credit)
Old Listing Effective Through Fall 2022:

This is the second fieldwork level I experience taken alongside of coursework during the 4th semester. It involves observation and engagement with individuals and/or groups to develop a better understanding of occupational performance, challenges and occupation-based interventions. The purpose is to apply knowledge and skills learned in didactic coursework to practice. An emphasis is placed on peer collaboration, professionalism and interactions with clients, on-site providers, and/or family members.

Prerequisites: Enforced Prerequisite at Enrollment: OT 195E Concurrent Courses: OT 210W and OT 212 and OT 214 and OT 216

Changes Effective Spring 2023:

• Credits

PHIL 124: Philosophy of Religion (3 Credits) (BA)
Old Listing Effective Through Fall 2022:

This course surveys perennial philosophical questions connected with religion: What is God, deity, or divinity? What is the nature and significance of religious experience? Is it rational to hold religious beliefs? How persuasive are arguments about the existence of God? How compatible is religion with modern science? What are the meanings of miracles, immortality, and creation? In what ways might morality depend on religion? What role ought religion to play in society and the public sphere? What lesson should we draw from profound religious experiences? Ought religious tolerance to be limited at all? Through the reading and discussion of relevant historical and contemporary texts, students will be encouraged to reflect on such questions from a variety of perspectives.

Changes Effective Spring 2023:

• Add Cross-Listing
PORT 123: Portuguese for Romance-language Speakers (2-3 Credits) (BA)
Old Listing Effective Through Fall 2022:

This course offers an introduction to Brazilian Portuguese for students who already have a good grasp of grammar and vocabulary in Spanish, French, Italian, or Latin. This intensive course will address all four language skills (listening, speaking, reading, and writing) and provide an overall view of Portuguese, its basic linguistic structures, and vocabulary. Emphasis will be placed especially on the differences between Portuguese and Spanish. By building on students' prior knowledge of Romance languages, the class moves quickly to cover the content of the three-semester basic language sequence in a single semester. As students acquire linguistic fluency over the semester, they will gain insight into Brazilian culture by analyzing song lyrics, articles, poems, short stories, and films. Students will gain the language skills necessary to study, live, and work in Brazil, such as reading a variety of literary and nonliterary texts, carrying on conversations on a range of personal, academic, and professional topics, write letters and other short pieces in Portuguese, and understand, for the most part, native speakers. Students must have the equivalent of three-semesters of college Spanish, French, Italian, or Latin, or the prior approval of the instructor to take this course. This course counts as 3 credits for undergraduate students and 2 credits for graduate students in the M.A. programs in Spanish literature and Spanish linguistics. Students are asked to register accordingly with the appropriate number of credits.

Prerequisite: Prerequisites: SPAN 3; FR 3; IT 3; LATIN 3; or prior approval from the instructor

Changes Effective Spring 2023:

• Change Description
• Remove Prerequisite
• Add Recommended Preparation

PORT 365: Imagining Brazilian Cities (3 Credits) (BA)
Old Listing Effective Through Fall 2022:

This course traces the transformation of Brazilian cities, as represented in literature and the arts, from the modernization projects of the late 19th century through the exponential growth of urban areas in recent decades. Studying these urban transformations will provide students with insight into how contemporary Brazil developed into an urban nation with seventeen of its cities featuring populations of one million or more. This class focuses primarily on artistic representations of the global metropolises of Rio de Janeiro and São Paulo, the modernist capital of Brasilia, and the northeastern city of Recife. Readings will highlight the diverse experiences and expressions of urban life in essays, poems, short stories, and avant-garde novels. Music, film, and photography will complement students’ literary tour of an urban Brazil. Critical readings from urban studies, architecture, anthropology, history, and other interdisciplinary fields will allow us to further explore the question of the city in Brazil. This course will be conducted in Portuguese. Students must be able to complete the readings, informal and formal written assignments, and in-class discussion and activities in Portuguese.

Prerequisite: PORT 405

Changes Effective Spring 2023:

• Change Prerequisite
• Add Concurrent

PORT 405: Advanced Composition and Conversation (3 Credits) (BA)
Old Listing Effective Through Fall 2022:

Intended to strengthen the advanced student's ability to speak, read, and write in modern Brazilian Portuguese.

Prerequisite: PORT 3

Changes Effective Spring 2023:

• Change Description
• Change Prerequisite

PORT 473: Luso-Brazilian Cinema (3 Credits) (IL) (BA)
Old Listing Effective Through Fall 2022:

This course studies social, political, economic, and cultural issues in the Portuguese-speaking world through the lens of film. This course meets the Bachelor of Arts degree attributes in Humanities and the International Cultures requirement. Through examinations of feature films and documentaries, the class explores how cinema approaches social, cultural, political, and economic realities in Brazil, Portugal, and Lusophone Africa. Students will learn about national histories, political struggles, social movements, and cultural practices of the Luso-Afro-Brazilian world as they gain the skills and appropriate vocabulary to analyze and discuss film. The course materials will invite students to consider how films examine legacies of imperialism, colonialism, and dictatorial regimes, as well as ongoing divisions and injustices on the basis of race, class, gender, and sexuality. Questions to be considered in this course include: How do filmmakers grapple with traumas of the past, questions of memory, and debates around truth and reconciliation? How do forms of fiction and documentary intersect, serve as complements, or contradict each other in film? How does film represent the convergences and divergences between different parts of the Portuguese-speaking world? What are the possibilities and limitations of studying these works in a comparative Lusophone framework? Readings on film, history, and Luso-Afro-Brazilian culture, and interviews with filmmakers will complement our studies of the films. The course will be conducted in English. No prior knowledge of Portuguese is necessary, as the films will have subtitles and required readings will all be in English. Students pursuing the Portuguese minor may receive credit for the minor if they complete all of their written assignments in Portuguese.

Prerequisite: Prerequisites: Students counting this course toward their Portuguese minor must already have taken or be concurrently enrolled in Portuguese 405

Changes Effective Spring 2023:

• Change Prerequisite

PT 150: Physical Therapist Assistant Procedures I (2-2 Credits: Maximum of 2 Credits)
Old Listing Effective Through Fall 2022:

This course is an introductory study of the general principles for physical therapy interventions including massage, thermal modalities, therapeutic light, ultrasound, and compression therapies. Introductory information regarding modalities and relevant information regarding inflammation and healing will also be covered. The course is designed to give the PTA student a working knowledge in the application and theory of physical agents in order to enhance the rehabilitation process. Interventions will be discussed and practiced in relation to the overall clinical management of patients and their specific disorders. Data collection skills associated...
with the interventions covered in this course will also be included. By the completion of this course, students should be able to discuss the rationale for and demonstrate the application of various thermal modalities, ultrasound, light therapies, compressive therapies and massage. Course content will be delivered in lecture, laboratory, and online materials. This course is available only to students enrolled in the 2 PTA major.

Prerequisites: Enforced Prerequisite at Enrollment: Grade of C or better required in (PT 100 or PT 100S) and PT 120 Enforced Concurrent at Enrollment: PT 384 and (PT 270 or PT 270W or PT 271 or PT 271W)

Changes Effective Spring 2023:

• Description

PT 285: Clinical Reasoning for the PTA (2 Credits)
Old Listing Effective Through Fall 2022:

This course will provide PTA students with opportunities to synthesize, prioritize, and apply rehabilitation principles from many different PTA courses. Students will learn strategies to combine data collection skills, interventions, and techniques in an integrated manner. Communication, documentation skills and therapeutic intervention skills will be developed through activities and class assignments. Patient scenarios will be utilized to afford students opportunities to develop their skills in choosing and applying effective treatment strategies for patients with complex diagnoses and/or cultural or intellectual differences, all while simultaneously addressing their patient’s comorbidities, past medical history, family dynamics and anticipated discharge destination. Using extensive examples, exercises, and real life scenarios, this course teaches students skills to assess, treat and document functional outcomes in a clear and logical progression. Additionally, concepts, principles, skills and techniques will be reviewed in preparation for the final clinical experiences and the PTA licensure examination. This course is available only to students enrolled in the PTA major.

Prerequisites: Enforced Prerequisite at Enrollment: Grade of C or better in PT 150 and PT 160 and PT 290 and (PT 270 or PT 270W or PT 272) and Concurrent Courses: PT 395E and PT 250 and PT 260 and (PT 280 or PT 280W or PT 282 or PT 282W)

Changes Effective Spring 2023:

• Prerequisites

RADSC 207: Registry Review (4 Credits)
Old Listing Effective Through Fall 2022:

Registry Review includes material from all radiological science courses, with emphasis on National Certification Examination, and career planning.

Prerequisites: Enforced Prerequisite at Enrollment: RADSC 206

Changes Effective Spring 2023:

• Credits
• Remove Prerequisite
• Add Concurrent

RADSC 295C: Radiological Sciences Clinical Internship III (2 Credits)
Old Listing Effective Through Fall 2022:

Supervised off-campus, nongroup instruction including field experiences, practice, or internships. Written and oral critique of activity required.

Changes Effective Spring 2023:

• Change Credits

RADSC 295F: Radiologic Science Clinical Internship VI (2 Credits)
Old Listing Effective Through Fall 2022:

Supervised off-campus, non-group instruction including field experiences, practice, or internships. Written and oral critique of activity required.

Changes Effective Spring 2023:

• Change Credits

RHS 495A: Rehabilitation and Human Services Internship (15 Credits)
Old Listing Effective Through Fall 2022:

Internship in rehabilitation and related human services agencies and institutions providing psychosocial, vocational, education, and/or residential services to people with disabilities.

Recommended Preparation: Students must have successfully completed all other required coursework for the major (grade of C or higher) as well as fulfilled general education requirements.

Changes Effective Spring 2023:

• Credits
• Description
• Add prerequisites
• Change Recommended Preparation

RM 410: Financial Mathematics for Actuaries (3 Credits)
Old Listing Effective Through Fall 2022:

Compound interest and annuity functions; life annuities; equations of value; determination of yield rates; bonds; introduction to derivatives. RM 410 Financial Mathematics for Actuaries (3) The first section of the course focuses on Interest Theory, including compound interest, annuities-certain, and life annuities; equations of value; loans and their valuation; the pricing of bonds (with and without default), determining their yields to maturity and outstanding balances; determination of yield rates, spot rates, forward rates, and At-Par rates; duration of an asset or liability, and immunization of interest rate risk. The second section introduces students to derivatives, including the description, payoffs, and profits of forwards, futures, puts, calls, and swaps, and how to use them to manage a company’s or investor’s financial risks. The course helps prepare actuarial students for the international actuarial exam FM (Financial Mathematics).

Changes Effective Spring 2023:

• Change Description
• Change Prerequisite

RM 411: Actuarial Mathematics I (3 Credits)
Old Listing Effective Through Fall 2022:

A study of the mathematical theory of life contingencies, single-life functions, and their applications. The course provides a solid understanding of the mathematics of life insurance and annuities, and helps actuarial students prepare for the international MLC actuarial exam
(Models in Life Contingencies). Students will produce a paper on selling insurance to someone they know, which includes pricing it based on the person’s age and gender. Topics covered include: 1) The mathematics, statistics, and interest theory supporting life contingencies, 2) In depth study of survival models and mortality tables, including Select, Ultimate, and Aggregate Mortality, 3) Pricing and understanding life insurance, and in particular, Whole Life Insurance, Endowment Insurance, and Term Insurance, 4) Pricing and understanding life annuities, including temporary and deferred annuities, 5) Determination and understanding of premiums for life insurance and annuities, and 6) Determination and understanding of life insurance reserves, and multiple ways of calculating them.

Changes Effective Spring 2023:
- Change Title
- Change Abbreviated Title
- Change Description

RM 412: Actuarial Mathematics II (3 Credits)
Old Listing Effective Through Fall 2022:
Joint-life and survivor-life functions, population life tables, and multiple decrement theory, with applications to disability and retirement problems.

Changes Effective Spring 2023:
- Change Title
- Change Abbreviated Title
- Change Description

RPTM 100S: Introduction to Golf Management (2 Credits)
Old Listing Effective Through Fall 2022:
First year seminar for students enrolled in the Professional Golf Management option of RPTM. RPTM 100S Introduction to Golf Management (2) This course is designed to provide 1st year students enrolled in RPTM — Professional Golf Management Option, an introduction to the University, to their major / option, and to the Professional Golfers’ Association of America. The course objectives are to introduce students to active learning as a way to make the transition to a more demanding academic environment. Students in the class will participate in collaborative group projects, which should also provide opportunities for them to establish relationships with faculty and peers. Students will investigate career opportunities within their field, as well as develop cover letters, resumes and reference sheets that will be necessary in obtaining internships for the summer session following their first year. Course content will also include information to help students become better students, by introducing them to available resources at the University, as well as develop skills in areas such as time management, study skills, note-taking etc. In addition, information will be introduced to help students become responsible members of the University community.

Changes Effective Spring 2023:
- Abbreviated Title
- Add Corequisite

RSOC 11: Introductory Rural Sociology (3 Credits) (US) (GS) (BA)
Old Listing Effective Through Fall 2022:
Basic sociological concepts applied to rural societal institutions and rural communities; causes and consequences of rural social change. R

SOC 011 Introductory Rural Sociology (3) (GS;US)(BA) This course meets the Bachelor of Arts degree requirements. The objectives of the course are (1) to acquaint students with the fundamental concepts, principles and research methods of rural sociology; and (2) to assist students in applying these concepts and principles to gain an understanding of rural societal institutions and the forces leading to social change in rural America and globally. Lectures and readings are designed to encourage students to examine their assumptions and understanding of the structure and functioning of rural communities, the forces leading to rural social change, and the likely course of these changes in the future. A major objective is to challenge students to critically analyze rural society and rural social institutions from a sociological perspective. Understanding the changing nature of rural society in an increasingly urbanizing and integrated world is a key consideration. The course meets requirements in the Agricultural Business Management and Environmental and Renewable Resource Economics Majors, as well as one General Education requirement.

Changes Effective Spring 2023:
- Change Title
- Change Description

RUS 83: First-Year Seminar in Russian (3 Credits) (US) (IL) (BA)
Old Listing Effective Through Fall 2022:
Russia’s cultural past and present. RUS 083S First-Year Seminar in Russian (3) (GH;FYS;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. Russia, the world’s largest country stretching over eleven time zones in Europe and Asia, is currently undergoing a dramatic transformation. For the past hundred years, Russia has served as a laboratory of gigantic dimensions as various social ideals were implemented with unprecedented radicalism. At the same time, Russia’s great writers raised ‘ultimate questions’ about social justice, the existence of God, and the meaning of human life with an unparalleled acuity and intensity. This course surveys Russia’s cultural past and present. Although it touches on aspects of Soviet culture, the main emphasis lies on what some people would call the ‘real Russian culture,’ eclipsed for seventy years under the Communist regime and now about to be resurrected. At this crucial juncture in the history of Russia, the notion of a ‘real’ culture remains highly problematic and controversial. The course surveys the various attitudes of Russian thinkers and authors toward the question of national identity and national destiny. Examples of Russian high culture (philosophy, literature, art, music) and the Russian religious faith (Orthodoxy) are discussed alongside with daily life in post-communist Russia. Special emphasis will be placed on the in-depth study of a few seminal works of Russian literature. The course also includes some Russian films. A knowledge of Russian is not required. Each section of this course will be limited to twenty students who will be instructed by an experienced professor. Questions and discussion are strongly encouraged. This course can be used to fulfill the General Education or Bachelor of Arts Humanities requirement, the United States and International Cultures requirement, and the first-year seminar requirement. A series of short papers will train students in the skills of information gathering and written expression. The course grade will be based on oral participation and on the grade for the papers, which will be evaluated both for content and writing. This course will help to prepare students for a variety of additional courses in the fields of literature and Russian/East European area studies. In addition to the academic topic and issues of this course, students can expect to gain a general introduction to the University as an academic community and have the opportunity to explore their responsibilities as members of that community. Students will develop an understanding of the learning tools
and resources available to them, including the opportunity to develop relationships with faculty and other students who share their academic interests.

Changes Effective Spring 2023:

• Change Description

RUS 405: Seminar in Russian Literature (3-6 Credits: Maximum of 6 Credits) (IL)
Old Listing Effective Through Fall 2022:

Readings in classical Russian literature; Topics vary. RUS 405 Seminar in Russian Literature (3 per semester/maximum of 6) (IL) In no other culture has literature attained the centrality it enjoyed in nineteenth- and twentieth-century Russia. Political, social and historical constraints propelled Russian writers into figures of witness, prophecy and moral instruction. Yet far from being limited to the vast, dark novels of legend, Russian literature offers a great deal of variety, including much humor, lyricism and fantasy. Russian 405 is a senior level seminar devoted to the in-depth study of selected texts of classical nineteenth- and twentieth-century Russian literature. It presupposes a solid reading knowledge of Russian. The choice of authors and texts will vary from one year to the next. Writers discussed on a regular basis will include such major figures as Alexander Pushkin, Mikhail Lermontov, Nikolai Gogol, Ivan Turgenev, Fyodor Dostoevsky, Lev Tolstoy, Anton Chekhov, as well as selected writers from the Soviet and post-Soviet period. The thematic emphasis will vary from one year to the next. The focus may be on the oeuvre of a single writer, on the development of a particular genre (e.g., lyric poetry or the short story), on a particular time period (e.g., the so-called "Silver Age" at the beginning of the twentieth century), or a particular theme (e.g., the conflict between liberalism vs. radicalism, the "woman question," the role of religion, Russia vs. the West, Russian "Orientalism," the Communist Revolution and its discontents, etc.). The literary texts will be read in Russian. They will be analyzed both in their socio-historical context and as aesthetically compelling manifestations of verbal art. Observational writing critique and case discussion will be essential means to explore the subject matter.

Changes Effective Spring 2023:

• Change Prerequisite

RUS 460: Linguistic Analysis of Contemporary Russian (3 Credits) (IL) (BA)
Old Listing Effective Through Fall 2022:

Detailed study of the phonology, morphology, and syntax of Modern Standard Russian and the major dialects.

Changes Effective Spring 2023:

• Change Course Number
• Change Title
• Change Description
• Change Prerequisite

SOCW 195: Introduction to Social Work with Field Hours (3 Credits)
Old Listing Effective Through Fall 2022:

This course provides an introduction to the social work profession through a historical, ethical and value-based exploration within a transcultural perspective. A focus on the skills and knowledge base of the profession as well its advocacy foundation with at risk disenfranchised and marginalized populations will be presented. Students will also have an introduction to agency practice through field hours. Course Objectives and Format Methodology based upon the Core Competencies and Practice Behaviors of Social Work Education 1. To construct a beginning understanding and demonstrate ethical and professional behaviors in social work practice. 2. To demonstrate an understanding of how the social work generalist practitioner engages in diversity and difference in practice. 3. To understand how the social work generalist practitioner advances human rights and social, economic, and environmental justice. 4. To construct a beginning understanding of how the social work generalist practitioner engages in practice-informed research and research-informed practice. 5. To demonstrate an understanding of the role policy play in the practice of generalist social workers. 6. To construct an understanding how social workers, intervene with individual, families, organizations and community.

Changes Effective Spring 2023:

• Change Description
• Add Cross-Listing

SPAN 131Y: Ibero-American Civilization (3 Credits) (WF) (US) (IL) (BA) (GH)
Old Listing Effective Through Fall 2022:

Spanish American and Brazilian life from the Conquest to the present; literature, art, the indigenous heritage, and contemporary problems. SPAN 131Y Ibero-American Civilization (3) (GH; US; IL) (BA) This course meets the Bachelor of Arts degree requirements. The nations and peoples of Latin America have a unique, interesting history and cultural heritage that are rooted in the traditions, beliefs, experiences, values, and struggles of Native American, European, African and other populations. As close neighbors and major trading partners of the United States, Latin American republics have both benefited and suffered from the proximity and foreign policies of the northern capitalist democracy, and have contributed to its strength and growing ethno-racial diversity. This course aims to provide the student with a broad, general introduction to the lands, peoples, and history of Latin America; to inform the student about the region’s ethnic diversity, cultural background, and problems of development; and to promote appreciation for the values and practices of other cultures, and a better understanding of relations between the nations of the region and the United States. Classes will usually combine lecture and discussion of reading assignments, with an expectation of high student participation. Films, videos, and recordings will enhance and illustrate readings. Three examinations (each covering approximately one third of the lessons presented), an occasional quiz, a book report or an annotated bibliography, participation and attendance will be the basis for evaluation of student learning and grades. Students are required and expected to read assignments, to attend class regularly, and to be prepared to participate in class discussions by answering and raising questions relevant to the lessons. Poor attendance will adversely affect a students standing and grade. This course will fulfill the Humanities Breadth and Cultural Diversity requirements. The course does not count
toward credits in the major or minor in Spanish because it is taught in English. Nevertheless, it will complement the department’s offerings by providing students with a greater appreciation of Latin America’s cultural origins, socioeconomic development, and everyday realities.

Changes Effective Spring 2023:

• General Education Recertification
• Change Description

SPLED 395W: **SPECIAL TOPICS** (3 Credits) (WF)
Old Listing Effective Through Fall 2022:

Prerequisites: Admission to SPLED program.
Corequisites: SPLED 401, SPLED 425, SPLED 408
Recommended Preparations: Clearances: Act 34, Act 152, FBI, Act 24 State and PSU Mandated Reporter, TB test

Changes Effective Spring 2023:

• Titles
• Add Description
• Change Corequisites
• Recommended Preparation

SPLED 401: Motivating Exceptional Learners (4 Credits)
Old Listing Effective Through Fall 2022:

Group and individual techniques to promote student task engagement and prosocial behavior.

Prerequisites: Admission to SPLED program
Corequisites: SPLED 425, SPLED 395W, SPLED 408

Changes Effective Spring 2023:

• Credits
• Description
• Corequisites

SPLED 412: Instruction for Students with Mild Disabilities (4 Credits)
Old Listing Effective Through Fall 2022:

The purpose of SPLED 412 is to introduce appropriate methodology for teaching academic skills to students with learning disabilities or those students who are academically “at risk.” The majority of the course deals with effective practices for designing and delivering academic instruction and independent work for students who do not learn optimally under current conditions within the general education environment. The teaching model presented in this course is best described as direct or explicit instruction, a highly structured and systematic approach to teaching. While explicit instruction (EI) is, overall, a structured approach to teaching, it CAN and SHOULD BE used flexibly with regard to presentation formats, ways of student responding and assessment, level of support, and the use of appropriate accommodations.

Prerequisites: A grade of C or better in SPLED 395W and SPLED 401 and SPLED 425 and SPLED 408.
Corequisites: SPLED 411 and SPLED 454 and SPLED 495E and SPLED 404

Changes Effective Spring 2023:

• Credits
• Description
• Prerequisites
• Corequisites

SPLED 415: Early Special Education (3-4 Credits)
Old Listing Effective Through Fall 2022:

Includes early identification methods, assessment, curricula, parent involvement, and program evaluation for exceptional preschoolers in mainstreamed or segregated settings.

Prerequisite: # Prevent all

Changes Effective Spring 2023:

• Titles
• Add Description
• Change Corequisites
• Recommended Preparation

SPLED 425: Foundations of Special Education, Etiologies, Law, and Implications for Practice (4 Credits)
Old Listing Effective Through Fall 2022:

An introduction to exceptional individuals being served in special education programs across the life span. SPLED 425 Foundations of Special Education, Etiologies, Law, and Implications for Practice (4) This course is designed to provide an introduction to all exceptionalities included in special education programs as delineated by the most recent federal legislation guiding services for individuals with special needs. An important component of this course is the exploration of typical developmental stages and milestones used to monitor children’s growth and progress over time. Fourteen (14) categories of disability are defined in relation to how states define who is eligible for a free appropriate public education under special education law. In addition, recent legislation is explored in relation to services provided, funding requirements, accommodations and classroom placement. The primary objective of this course to provide future educators with a solid foundation for their understanding disabilities, services, and legislation as they enter into the special education profession. Secondary objectives include preparing students to (a) address common misconceptions and myths associated with special education, (b) work with interdisciplinary teams in the formation of Individualized Education Program (IEP), and (c) promote the preparation of exceptional individuals to assume adult roles.

Prerequisites: Admission to SPLED program
Corequisites: SPLED 395W, SPLED 401, SPLED 408

Changes Effective Spring 2023:

• Credits
• Description
• Prerequisites

SPLED 454: Assessment for Instruction (4 Credits)
Old Listing Effective Through Fall 2022:

Orientation to evaluation of students with special needs with emphasis on the creation, use, and interpretation of assessments.
Prerequisites: A grade of C or better in SPLED 395W, SPLED 401, SPLED 425, and SPLED 408
Corequisites: SPLED 404, SPLED 411, SPLED 412, SPLED 495E

Changes Effective Spring 2023:

• Credits
• Description
• Prerequisites

SPLED 495F: Practicum in Special Education (15 Credits)
Old Listing Effective Through Fall 2022:

Culminating student teaching experience in special education instructional setting. Students are expected to demonstrate appropriate assessment strategies, develop lesson plans, implement explicit instructional strategies, and utilize behavior management techniques. In addition, students are expected to demonstrate appropriate interpersonal communication skills, as well as dependability regarding professional responsibilities.

Prerequisites: A grade of C or better required in SPLED 409A, 409B, 409C and 495G, SPLED 418

Changes Effective Spring 2023:

• Credits
• Description

SWENG 431: Software Verification, Validation, and Testing (3 Credits)
Old Listing Effective Through Fall 2022:

Introduction to methods of software verification, validation, and testing; mathematical foundations of testing, reliability models; statistical testing. SWENG 431 Software Verification, Validation, and Testing (3) Provides a background necessary for verification, validation, and testing of software systems. Verification addresses the question: ‘are we building the product right?’ In other words, does the product meet the engineering specifications? Validation addresses whether the right product is being built and if it meets the design requirements. The testing aspect of the course addresses many of the methods available to test software systems. The levels of testing explored are 1) unit level (each module is tested independently), 2) integration testing (where the modules are integrated together and tested as a complete system), and 3) acceptance testing (the testing requirements of the users). Following this, specific test methodologies are addressed. By the end of this course the student should also be able to develop an appropriate test plan.

Changes Effective Spring 2023:

• Change Prerequisite

THEA 113: Musical Theatre Theory I (3 Credits) (BA)
Old Listing Effective Through Fall 2022:

Studies in the fundamentals of music notation and sight-singing. THEA 113 Musical Theatre Theory I (3) (BA) This course meets the Bachelor of Arts degree requirements. THEA 113 is designed to provide the beginning musical theatre student with the fundamentals of music theory and diatonic harmony as well as the analytical skills with which to approach and appreciate the structure of songs and musical theatre scores. It is focused primarily on the musical theatre literature to enable the beginning student to learn and appreciate more efficiently the literature that will be central to the performance classes in the major. The class places a rigorous emphasis on pitch and rhythmic identification to develop a high degree of musicianship in the beginning student, both to provide a solid basis for the classes to come and to make the performer more competitive in the musical theatre industry. It is designed to be entry-level in preparation for THEA 114 (Musical Theatre Form and Analysis) and the upper-level theory classes (THEA 212 and THEA 214). The course presupposes no previous musical training or experience. For those with some previous musical theatre education, the course may function successfully as a refresher before the more rigorous analysis courses to follow. It satisfies a significant need in that it focuses on the specific theoretical knowledge the musical theatre student needs to know to become competitive in a professional career.

Changes Effective Spring 2023:

• Credits
• Description

THEA 212: Musical Theatre Theory III (3-3 Credits: Maximum of 3 Credits) (BA)
Old Listing Effective Through Fall 2022:

Intermediate studies in diatonic harmony, analysis, sight-singing and dictation. THEA 212 Musical Theatre Theory II (3) (BA) This course meets the Bachelor of Arts degree requirements. THEA 212 is designed to provide the intermediate musical theatre student with the mastery of harmonic and melodic analysis with which to approach and appreciate the structure of songs and musical theatre scores. It is designed to enable the intermediate student to sight-read more efficiently the literature that is central to the performance classes in the major, and to develop basic accompaniment and transposition skills that will become indispensable to the professional career. A continued emphasis on pitch and rhythmic identification will enable the intermediate student to maintain a high degree of musicianship in the performance classes required in the major and will make the performer more competitive in the musical theatre industry. THEA 113, the entry-level theory course and THEA 114, Music Theatre Form and Analysis are prerequisites to THEA 212, which is designed as the third course of the theory-form-and-analysis sequence. The course satisfies a significant need in that it focuses on the specific theoretical knowledge the musical theatre student requires to become competitive in a professional career.

Changes Effective Spring 2023:

• Credits
• Description

THEA 214: Musical Theatre Theory IV (3-3 Credits: Maximum of 3 Credits) (BA)
Old Listing Effective Through Fall 2022:

Advanced studies in the technique and practice of chromatic harmonic analysis and sight-singing. THEA 214 Musical Theatre Theory III (3) (BA) This course meets the Bachelor of Arts degree requirements. THEA 214 is designed to provide the advanced musical theatre student with the analytical skills with which to approach and appreciate the harmonic and melodic structure found in the various compositional styles of musical theatre literature. It is focused specifically on musical theatre literature...
that is representative of the current repertoire to enable the advanced student to function more effectively in auditions and other performance venues. The course is designed to function as the culmination of the theory-form-and-analysis sequence, connecting up the terminology, techniques, and repertoire, developed throughout the four-semester process. The course satisfies a significant need in that it focuses on the specific theoretical knowledge that the musical theatre student is required to master in order to become competitive in a professional career.

Changes Effective Spring 2023:
• Credits
• Description

THEA 250: Introduction to Scene Design (3 Credits)
Old Listing Effective Through Fall 2022:

Introduction to the history, processes, materials, and concepts involved in designing scenery for the theatre. THEA 250 Introduction to Scene Design (3) This course is the introductory course to the art and practice of designing scenery for the stage. The primary goals of the course are to introduce students to the history and profession of scene design, and to help students learn a fundamental design process to apply to the evolution and presentation of design for stage scenery. This process includes play analysis, script and visual research methods, analysis of dramatic action, concept evolution, and visual communication methods. Evaluations will be based on the following: 1. Students will submit papers to demonstrate text analysis skills and to explore the work of specific designers or historical trends (25%) 2. Students will receive in-class critiques to evaluate their design concepts and communication skills (25%) 3. Students will receive comment sheets for each studio project critiquing specific aspects of their design process (50%)

Prerequisites: Enforced Prerequisite at Enrollment: THEA 130 and THEA 131

Enforced Concurrent at Enrollment: THEA 251

Changes Effective Spring 2023:
• Remove Concurrent

THEA 427A: B.F.A. Acting Studio III (2 Credits)
Old Listing Effective Through Fall 2022:

Continuation of THEA 425A THEA 427A B.F.A. Acting Studio III (2)THEA 427A is an extension of THEA 425A, a laboratory or practicum course requiring active student presentation of work in progress for critiques by the instructor and input from peers. Working in pairs, students will be assigned a five-minute scene from modern American realism. Students must read the play from which the assigned scene is taken, do the necessary historical/analytical homework, develop a character biography and a scene score, and present the result of their work in the initial 'on-the-feet' working sessions for faculty critique and peer input. Taking away responses from each working session, the students are expected to rehearse outside of class to address any issues raised in the previous working session and to ready the scene for the next viewing. In THEA 427A, the instructor will serve, not as a director, but as an acting coach, asking probing questions and using his or her own energy to exhort, guide, and discipline the students. It is expected that faculty intervention will decrease and student self-reliance will increase with each passing studio.

Prerequisites: Enforced Prerequisite at Enrollment: THEA 425A or THEA 427C

Changes Effective Spring 2023:
• Remove Prerequisite

THEA 486: Stage Management for Production (1 Credit) (BA)
Old Listing Effective Through Fall 2022:

Stage manager for University Theatre production.

Changes Effective Spring 2023:
• Remove Prerequisite

WFED 413: Vocational Education for Special-Needs Learners (3 Credits)
Old Listing Effective Through Fall 2022:

Introduction to program modifications, supplementary services, and resources required for special-needs learners in vocational and practical arts education programs.

Changes Effective Spring 2023:
• Titles
• Description

WFS 454: Field Ichthyology (2 Credits)
Old Listing Effective Through Fall 2022:

W F S 454 Field Ichthyology is designed familiarize students with collection, observation, and field identification of Pennsylvania’s fish fauna. Students are taught how to collect, preserve, catalog, curate, and observe fishes. Additionally, they are taught how to gather pertinent in situ behavioral and distributional information on fishes and how to manage, record, and store field data. With the increasing emphasis on biodiversity and environmental monitoring, students need to be able to collect, manage, and store data as well as secure the chain of custody. This course is offered annually at the end of spring semester at the Tom Ridge Environmental Center in Erie, PA. Classes begin Sunday night at 1800 and extend until 1700 on Friday. After the three-hour introductory class, students meet each day at the Tom Ridge Environmental Center at 0700. Field collections/observations begin promptly, and end about 1700. Students reassemble in the laboratory at 1830 for a two-hour discussion of the day’s activities. On one day, a series of night collections is made that extends until midnight. Students are responsible for their motel and food expenses during the week. All transportation to and from the collection sites is provided.

Changes Effective Spring 2023:
• Change Description

Program Changes
Accounting, B.S. (Behrend) (ACNTG_BS)
Effective Summer 2022:
• Increased Prescribed Courses from 64 credits to 70 credits
• Added MIS 250, MIS 345 to Prescribed Courses
• Decreased Additional Courses from 20 credits to 17 credits
• Added MIS 336, MIS 344 to Additional Courses
• Decreased Supporting Courses and Related Areas from 12 credits to 9 credits

**Advertising/Public Relations, B.A. (ADPR_BA)**  
**Effective Summer 2022:**

• Changed Electives from 23 credits to 23-26 credits
• Changed Requirements for the Major from 35 credits to 35-38 credits
• Removed COMM 411 from Additional Courses in the Advertising Option
• Changed Requirements for the Public Relations Option from 21 credits to 24 credits
• Added COMM 372 to Prescribed Courses in the Public Relations Option
• Added COMM 305 to Additional Courses in the Public Relations Option
• Removed COMM 411 from Additional Courses in the Public Relations Option

**African American Studies, Minor (AFAMR_UMNR)**  
**Effective Fall 2022:**

• Added AFAM 126N/INART 126N, AFAM 207N/MUSIC 207N, AFAM 226N to Additional Courses
• Deleted ECON 436W from Additional Courses

**Agribusiness Management, B.S. (AGBM_BS)**  
**Effective Spring 2023:**

• Revised Program Description
• Changed Electives from 3-9 credits to 5-9 credits
• Changed Requirements for the Major from 81-84 credits to 81-82 credits
• Changed Additional Courses from 29-32 credits to 29-30 credits

**Applied Economics, Minor (APECN_UMNR)**  
**Effective Fall 2022:**

• Revised Program Description
• Revised Supporting Courses and Related Areas

**Art History, B.A. (ARTH_BA)**  
**Effective Fall 2022:**

• Added ART 111Z, ART 220Z to Additional Courses
• Removed ARTH 111H from Additional Courses
• Added course listings to Supporting Courses and Related Areas

**Art History, Minor (ARTH_UMNR)**  
**Effective Fall 2022:**

• Revised Program Description
• Added ARTH 111Z to Additional Courses

**Biblical Studies, Certificate (BIBSTD_UCT)**  
**Effective Summer 2022:**

• New certificate added

**Biobehavioral Health, B.S. (Health and Human Development, Capital, University College) (BBH_BS, BBHCA_BS, BBHUC_BS)**  
**Effective Fall 2022:**

• Removed Electives
• Increased Prescribed Courses from 34 credits to 37 credits
• Decreased Additional Credits from 48-50 credits to 45-47 credits
• Moved BBH/AFAM 302 from Additional Courses to Prescribed Courses
• Added BBH 370 to Additional Courses
• Removed RLST 131 from Additional Courses

**Business, B.S. (BSBUC_BS)**  
**Effective October 3, 2022:**

• Enrollment Hold implemented for Accounting option at Hazleton campus; Accounting option not accepting new students at Hazleton campus

**Communication Arts and Sciences, B.A. (CASBA_BA)**  
**Effective Summer 2022:**

• Added new Integrated B.A. in Communication Arts and Sciences and M.S. in Human Resources and Employment Relations

**Communication Arts and Sciences, B.S. (CASBS_BS)**  
**Effective Summer 2022:**

• Added new Integrated B.S. in Communication Arts and Sciences and M.S. in Human Resources and Employment Relations

**Communications, B.A. (Capital) (COMCA_BA)**  
**Effective Spring 2023:**

• Added COMM 342W to Prescribed Courses
• Removed COMM 332 from Prescribed Courses
• Removed COMM 363 and COMM 370 from visual communication requirement in Additional Courses
• Added CC 200, COMM 473 to communications requirement in Additional Courses
• Changed COMM 495 from 1-6 credits to 3-6 credits in Additional Courses

**Communications, B.A. (University College) (COMUC_BA)**  
**Effective Fall 2022:**

• Enrollment Hold implemented at Beaver and Greater Allegheny campuses; program not accepting new students at Beaver or Greater Allegheny campuses

**Effective Spring 2023:**

• Program phased out at Beaver and Greater Allegheny campuses

**Computational Sciences, Minor (CPTSC_UMNR)**  
**Effective Fall 2022:**

• New minor added

**Computer Science, B.S. (Engineering) (CSENG_BS)**  
**Effective Fall 2022:**

• Program added to Beaver, Brandywine, Hazleton campuses

**Computer Science, Minor (Capital) (COMP_UMNR)**  
**Effective Spring 2023:**

• Revised Program Description
• Decreased Prescribed Courses from 12 credits to 6 credits
Using this Bulletin

- Added Additional Courses section
- Moved CMPSC 122, CMPSC 221 from Prescribed Courses to Additional Courses
- Added CMPSC 132, CMPSC 330 to Additional Courses

Criminal Justice, B.S. (Capital) (CRIMJ_BS)
Effective Spring 2023:
- Changed CRIMJ 250 to CRIMJ 250W in Prescribed Courses
- Added CRIMJ 409, CRIMJ 416, CRIMJ/HIST 469 to Sequence B in Additional Courses
- Removed CRIMJ 300, CRIMJ 304 from Sequence B in Additional Courses
- Added CRIMJ 409, CRIMJ 416, CRIMJ/HIST 469 to Sequence C in Additional Courses
- Changed CRIMJ 489 to CRIMJ 489W in Additional Courses
- Removed CRIMJ 300 from Sequence C in Additional Courses

Cybersecurity Computational Foundations, Minor (CCF_UMNR)
Effective Fall 2022:
- Added Entrance to Minor Requirements

Data Sciences, B.S. (DATSC_BS, DTSC_E_BS, DTSCS_BS)
Effective Spring 2021:
- Revised Program Description
- Decreased total requirements for degree completion from 125 credits to 123 credits
- Changed Electives from 5-14 credits to 0-9 credits
- Increased Requirements for the Major from 72-81 credits to 75-84 credits
- Decreased Prescribed Courses for the Major from 27 credits to 24 credits
- Added DS 435 to Prescribed Courses for the Major
- Removed DS 300, DS 440 from Prescribed Courses for the Major
- Increased Additional Courses for the Major from 10 credits to 13 credits
- Added STAT 418/MATH 418, DS 440, DS 440W to Additional Courses for the Major
- Removed STAT 414/MATH 414 from Additional Courses for the Major
- Increased Requirements for the Option from 35-44 credits to 38-47 credits
- Increased credits required for the Applied Data Sciences option from 38 credits to 41 credits
- Added DS 300 to Prescribed Courses for the Applied Data Sciences option
- Removed IST 230 from Prescribed Courses for the Applied Data Sciences option
- Increased Additional Courses for the Applied Data Sciences option from 6 credits to 9 credits
- Added CMPSC 360, DS 420, DS 494, IST 230, MATH 311W to Additional Courses for the Applied Data Sciences option
- Removed IST 445, IST 462 from Additional Courses for the Applied Data Sciences option
- Increased credits required for the Computational Data Sciences option from 44 credits to 47 credits
- Increased Prescribed Courses for the Computational Data Sciences option from 28 credits to 31 credits
- Added CMPSC 461, STAT 414/MATH 414 to Prescribed Courses for the Computational Data Sciences option
- Removed CMPSC 455 from Prescribed Courses for the Computational Data Sciences
- Increased credits required for the Statistical Modeling Data Sciences option from 35 credits to 38 credits
- Increased Prescribed Courses for the Statistical Modeling Data Sciences option from 13 credits to 16 credits
- Added STAT 414/MATH 414 to Prescribed Courses for the Statistical Modeling Data Sciences option

Deafness and Hearing Studies, Minor (DHS_UMNR)
Effective August 19, 2022:
- Enrollment Hold implemented; program not accepting new students

Digital Journalism and Media, B.A. (DGJRM_BA)
Effective Spring 2023:
- Changed Electives from 17-28 credits to 11 credits
- Increased Requirements for the Major from 34 credits to 40 credits
- Increased Prescribed Courses from 16 credits to 19 credits
- Added COMM 180, COMM 260W, COMM 269 to Prescribed Courses
- Removed COMM 403, COMM 428A from Prescribed Courses
- Increased Additional Courses from 6 credits to 9 credits
- Added COMM 310/IST 310, COMM 364, COMM 403, COMM 492, COMM 282, COMM 460W, COMM 467 to Additional Courses
- Removed COMM 100N, COMM 180, COMM 230W, COMM 260W from Additional Courses
- Added COMM 228, COMM 461 to Supporting Courses and Related Areas
- Removed COMM 180, COMM 215, COMM 169, COMM 270, COMM 310, COMM 337, COMM 342W, COMM 346, COMM 428B, COMM 460W, COMM 467, COMM 475, COMM 487W, COMM 492, COMM 493 from Supporting Courses and Related Areas

Digital Media Trends and Analytics, Minor (DMTA_UMNR)
Effective Fall 2022:
- Moved COMM 310 from Prescribed Courses to Additional Courses
- Added COMM 422 to Additional Courses

Diversity Studies, Certificate (Liberal Arts) (DIVSTD_UCT)
Effective Spring 2023:
- Added PSYCH 422 to Additional Courses

East European Studies, Minor (EEST_UMNR)
Effective Fall 2022:
- Changed Requirements for the Minor from 22-31 credits to 26-28 credits
- Changed Additional Courses from 10-16 credits to 11-16 credits
- Added RUS 200, RUS 401 to Track 1 in Additional Courses
- Added UKR 3, POL 1, POL 2, POL 3, RUS 1, RUS 2 to Track 1 in Additional Courses
- Removed RUS 410 from Track 2 in Additional Courses
- Added POL 3, UKR 1, UKR 2, RUS 1, RUS 2, RUS 3 to Track 3 in Additional Courses
• Added RUS 3, RUS 410, POL 1, POL 2, UKR 1, UKR 2, UKR 3 to Track 4 in Additional Courses
• Revised Supporting Courses and Related Areas

Elementary Education, B.El.Ed. (ELEM_BELED) Effective Summer 2022:

• Revised Program Description
• Revised Entrance to Major Requirements
• Changed total requirements for degree completion for the PK-4 Early Childhood Option from 134 credits to 139 credits
• Changed total requirements for degree completion for the Grade 4-8 English/Language Arts and Reading Option from 132 credits to 137 credits
• Changed total requirements for degree completion for the Grade 4-8 Mathematics Option from 137 credits to 139 credits
• Changed total requirements for degree completion for the Grade 4-8 Social Studies Option from 135 credits to 137 credits
• Changed Requirements for the Major from 132-142 credits to 131-141 credits
• Added 0-6 credits of Electives
• Decreased Prescribed Courses for the Major from 71 credits to 67 credits
• Added EDUC 385 to Prescribed Courses for the Major
• Removed EDUC 320, SPLED 404 from Prescribed Courses for the Major
• Changed EDUC 490 from 12 credits to 9 credits in Prescribed Courses for the Major
• Changed EDUC 495B from 1 credit to 3 credits in Prescribed Courses for the Major
• Increased Additional Courses for the Major from 21 credits to 24 credits
• Added HDFS 229 and HDFS 239 to Additional Courses for the Major
• Increased Supporting Courses and Related Areas for the Major from 13-18 credits to 13-21 credits
• Added EDUC 477, EDUC 452, SPLED 404, SPLED 409C to Supporting Courses and Related Areas for the Major
• Removed SPLED 409A, SPLED 409B, SPLED 418 from Supporting Courses and Related Areas for the Major
• Added EDUC 320 to Prescribed Courses in the PK-4 Early Childhood Education Option
• Removed HDFS 229 from Prescribed Courses in the PK-4 Early Childhood Education Option
• Added AA 193N, AFAM/ENGL/INART 141N, AMST 150N, APLNG 220N, ARTH/ENGL 224N, CMLIT 109, CMLIT 130, CMLIT 140, CMLIT 153, CMLIT 183Q/SC 183Q, ENGL 103, ENGL 112, ENGL 129, ENGL/SC 142N, ENGL 161N/HIST 162N, ENGL 165N, ENGL/PLSC 183N, ENGL 184, ENGL 185, ENGL 189, ENGL 223N, ENGL 228, ENGL/CHEM 233N, ENGL 236N, ENGL 237N, HDFS 254N, LLED 215N to Additional Courses in the PK-4 Early Childhood Education Option
• Removed CMLIT 184, CMLIT 185, CMLIT 189, ENGL 2, ENGL 129H, ENGL 139 from Additional Courses in the PK-4 Early Childhood Education Option
• Added EDUC 320, LLED 420 to Prescribed Courses in the English/Language Arts and Reading (4-8) Option
• Removed EDUC 322, HDFS 239 from Prescribed Courses in the English/Language Arts and Reading (4-8) Option
• Changed the Mathematics (4-8) Option from 32 credits to 29 credits

• Decreased Prescribed Courses in the Mathematics (4-8) Option from 23 credits to 20 credits
• Removed HDFS 239 from Prescribed Courses in the Mathematics (4-8) Option
• Added ENGL 194H to Additional Courses in the Mathematics (4-8) Option
• Removed ENGL 101, ENGL 139 from Additional Courses in the Mathematics (4-8) Option
• Changed the Social Studies (4-8) Option from 30 credits to 27 credits
• Decreased Prescribed Courses in the Social Studies (4-8) Option from 24 credits to 21 credits
• Removed HDFS 239 from Prescribed Courses in the Social Studies (4-8) Option
• Added AA 193N, AFAM/ENGL/INART 141N, AMST 150N, APLNG 220N, ARTH/ENGL 224N, CMLIT 109, CMLIT 130, CMLIT 140, CMLIT 153, CMLIT 183Q/SC 183Q, ENGL 112, ENGL 142N/SC 142N, ENGL 161N/HIST 162N, ENGL 165N, ENGL 183N/PLSC 183N, ENGL 194H, ENGL 223N, ENGL 236N, ENGL 237N, HDFS 254N, LLED 215N to Additional Courses in the Social Studies (4-8) Option
• Removed ENGL 2, ENGL 104/JST 104, ENGL 139, ENGL 140 from Additional Courses in the Social Studies (4-8) Option

Energy Finance, Certificate (ENFIN_UCT) Effective Fall 2022:

• Revised Program Description
• Added EBF 301 and MET 436 to Required Courses
• Removed FIN 419 from Required Courses

English, B.A. (Altoona) (ENGAL_BA) Effective Fall 2022:

• Removed Traditions of Innovation option from Penn State Altoona, the Altoona College
• Added Writing and Literature in Context option to Penn State Altoona, the Altoona College

English, B.A. (University College) (ENGUC_BS) Effective Spring 2022:

Program phased out at Wilkes-Barre campus

Effective Summer 2022:

• Enrollment Hold implemented at Wilkes-Barre campus; program not accepting new students at Wilkes-Barre campus

Entrepreneurship and Innovation, Minor (ENTI_UMNR) Effective Fall 2022:

• Added BIOL 431 to the Bio-Tech Cluster
• Added BA 322, MGMT 365, MGMT 451, MGMT 453 to the New Ventures Cluster
• Removed BLAW 243 from New Ventures Cluster

Foundations of Employment Relations and Leadership, Certificate (BUS_UCT) Effective Fall 2022:

• Changed Program Name to Foundations of Organizational Leadership
• Added OLEAD 201, OLEAD 210 to Required Courses
• Removed LER 100, LER 435 from Required Courses
Health Humanities, B.A. (HHUM_BA)
Effective Summer 2022:
• New program added

Health Humanities, B.S. (HHUM_BS)
Effective Summer 2022:
• New program added

Information Sciences and Technology, A.S. (Information Sciences and Technology, Berks, University College) (2IST_AS, 2ISBK_AS, 2ISUC_AS)
Effective Fall 2022:
• Added Application Development Option and Cybersecurity Option
• Renamed Individualized Option to Custom Option
• Phased out the Baccalaureate Option
• Added Generalized Business Option to Greater Allegheny campus
• Networking Option phased out at York campus
• Added Custom Option to DuBois campus
• Revised Program Description
• Changed General Education credits included in Requirements for the Major from 9-12 credits to 6-9 credits
• Changed Electives from 4-7 credits to 0-5 credits
• Changed Requirements for the Major from 44-46 credits to 43-47 credits
• Changed Common Requirements for the Major from 29 credits to 31-33 credits
• Changed Prescribed Courses for the Major for 25 credits to 18 credits
• Added CAS 100, IST 140 to Prescribed Courses for the Major
• Removed CAS 100B, CMPSC 101, IST 110, IST 111S, IST 250 from Prescribed Courses for the Major
• Changed Additional Courses for the Major from 4 credits to 13-14 credits
• Added IST 250, IST 256, IST 495, MATH 21, MATH 22, MATH 26, MATH 110, MATH 140, SCM 200, CYBER 100, CYBER 100S, HCDD 113, HCDD 113S, IST 110, SRA 111 to Additional Courses for the Major
• Added 0-1 credits of Supporting Courses and Related Areas for the Major
• Changed Requirements for the Option from 15-17 credits to 12-14 credits
• Changed Generalized Business Option from 15-16 credits to 12-14 credits
• Changed Additional Courses in the Generalized Business Option from 15-16 credits to 12-14 credits
• Added BA 301, FIN 301, BA 302, SCM 301, BA 303, MKTG 301, BA 304, MGMT 301, BA 243, BLAW 243, BA 241, BA 242 to Additional Courses in the Generalized Business Option
• Removed ACCTG 151, ACCTG 152, BA 250, ECON 14, MATH 21, MATH 22, MATH 26, MATH 37, MGMT 100, MGMT 321, MGMT 341, MKTG 220, MKTG 221, MKTG 310, MKTG 327 from Additional Courses in the Generalized Business Option
• Changed Individualized Option (Custom Option) from 15 credits to 12 credits
• Changed Supporting Courses and Related Areas in the Individualized Option (Custom Option) from 15 credits to 12 credits
• Changed Networking Option from 15 credits to 12 credits
• Changed Prescribed Courses in the Networking Option from 15 credits to 12 credits
• Removed Additional Courses section from Networking Option

Information Sciences and Technology, B.S. (Information Sciences and Technology) (ISTBS_BS)
Effective Fall 2022:
• Information Technology: Integration & Application Option phased out at University Park campus

Information Sciences and Technology, B.S. (Abington, Berks, University College) (ISSAB_BS, ISSBK_BS, ISSUC_BS)
Effective Summer 2022:
• Program phased out at Penn State Abington, the Abington College; Penn State Berks, the Berks College; and University College

Information Sciences and Technology for Communication Arts and Sciences, Minor (ISCAS_UMNR)
Effective Summer 2022:
• Program phased out

Information Systems, B.S. (INFSY_BS)
Effective Fall 2022:
• Revised Program Description
• Revised Entrance to Major Requirements
• Increased total requirements for degree completion from 120 credits to 121 credits
• Increased Requirements for the Major from 79 credits to 94 credits
• Changed General Education credits included in Requirements for the Major from 12 credits to 18 credits
• Removed Electives
• Increased Prescribed Courses from 49 credits to 61 credits
• Added CAS 100, IST 140, MIS 301, MIS 420, MIS 431, MIS 446, MIS 495 to Prescribed Courses
• Removed MIS 204, MIS 448, MIS 465 from Prescribed Courses
• Increased Additional Courses from 24 credits to 27 credits
• Added ENGL 15, ENGL 30H, ESL 15, MIS 204, MIS 250 to Additional Courses
• Removed Application Development Concentration and Network Security Concentration from Additional Courses
• Added Systems Design Concentration, Data and Business Analytics Concentration, and Computing Security Concentration to Additional Courses
• Removed CMPSC 101, CMPSC 121, IST 140 from Additional Courses
• Removed IST 302, IST 451, IST 456, MIS 413, MIS 446, MIS 461, MIS 466, MIS 489 from Individualized Concentration in Additional Courses

Information Systems and Statistical Analysis, Minor (ISSA_UMNR)
Effective Spring 2022:
• Program phased out

Integrative Arts, B.A. (Altoona) (IARAL_BA)
Effective June 15, 2022:
• Enrollment Hold implemented at Penn State Altoona, the Altoona College; program not accepting new students at Penn State Altoona, the Altoona College
International Business, B.S. (INTB_BS)
Effective Fall 2022:
- Revised Program Description
- Increased total requirements for degree completion from 122 credits to 128 credits
- Changed Requirements for the Major from 98 credits to 104 credits
- Increased Prescribed Courses from 39 credits to 51 credits
- Added IB 303, IB 404, IB 464, MKTG 445 to Prescribed Courses
- Decreased Additional Courses from 23 credits to 17 credits
- Added ACCTG 461, IB 350 to Additional Courses
- Removed IB 303, MGMT 461, MKTG 445 from Additional Courses

International Business, Minor (IB_UMNR)
Effective Fall 2022:
- Revised Program Description
- Added Entrance to Minor Requirements
- Changed the Requirements for the Minor from 37 credits to 27 credits
- Increased Prescribed Courses from 7 credits to 9 credits
- Removed ACCTG 211 from Prescribed Courses
- Moved FIN 301 and SCM 301 from Additional Courses to Prescribed Courses
- Decreased Additional Courses from 18 credits to 6 credits
- Added IB 470 to Additional Courses
- Removed BA 301, BA 302, BA 303, BA 304, IB 440, MGMT 301 and MKTG 301 from Additional Courses
- Revised Supporting Courses and related Areas section

Letters, Arts, and Sciences, A.A. (Liberal Arts, Abington, Altoona, Behrend, Berks, Capital, University College) (2LAS_AA, 2LAAB_AA, 2LAAL_AA, 2LABC_AA, 2LABK_AA, 2LACA_AA, 2LAUC_AA)
Effective Summer 2022:
- Program name changed to Multidisciplinary Studies, A.A.

Letters, Arts, and Sciences, B.A. (Liberal Arts, Abington, Altoona, University College) (LAS_BA, LASAB_BA, LASAL_BA, LASUC_BA)
Effective Summer 2022:
- Program name changed to Multidisciplinary Studies, B.A.

Mathematics, B.A. (Altoona) (MTAAL_BA)
Effective June 15, 2022:
- Enrollment Hold implemented at Penn State Altoona, the Altoona College; program not accepting new students at Penn State Altoona, the Altoona College

Mathematics, B.S. (Altoona) (MTSAL_BS)
Effective June 15, 2022:
- Enrollment Hold implemented at Penn State Altoona, the Altoona College; program not accepting new students at Penn State Altoona, the Altoona College

Mechanical Engineering, B.S. (Engineering, Altoona) (ME_BS, MEENG_BS, MEAL_BS)
Effective Summer 2021:
- Decreased Prescribed Courses from 83-84 credits to 82-83 credits
- Added ME 435 to Prescribed Courses
- Removed CMPSC 200 from Prescribed Courses
- Changed ME 348 from 4 credits to 3 credits in Prescribed Courses
- Increased Additional Courses from 18 credits to 19 credits
- Added BIOL 161, CMPSC 200, CMPSC 201 to Additional Courses
- Removed CAS 100, EMCH 316, ME 315, ME 325, ME 355, ME 375, ME 442W, ME 443W from Additional Courses
- Added ME 435 to Supporting Courses and Related Areas

Medical Plastics, Certificate (MEDPLS_UCT)
Effective Spring 2023:
- Removed PLET 497 from Required Courses
- Added PLET 380, PLET 481, PLET 482, PLET 483, PLET 484 to Required Courses

Mining Technology, A.S. (2MNGT_AS)
Effective July 28, 2022:
- Enrollment Hold removed

Nursing, B.S.N. (NURS_BSN)
Effective Fall 2022:
- Revised Program Description
- Added R.N. to B.S.N. option
- Changed Electives from 5-9 credits to 3-9 credits
- Changed Requirements for the Major from 87-92 credits to 87-93 credits
- Changed General Education credits included in Requirements for the Major from 21-22 credits to 21 credits
- Changed Requirements for the Option from 57-60 credits to 57-61 credits
- Increased Prescribed Courses in the General Nursing Option from 54 credits to 57 credits
- Added NURS 302, NURS 480 to Prescribed Courses in the General Nursing Option
- Removed Supporting Courses and Related Areas from the General Nursing Option
- Added NURS 302, NURS 480 to Prescribed Courses in the Second Degree Option
- Decreased credits for NURS 495 from 6 credits to 3 credits in Prescribed Courses in the Second Degree Option

Nursing, R.N. to B.S.N. (NURN_BSN)
Effective Summer 2022:
- Program phased out

Nutritional Sciences (NUTR_BS)
Effective Summer 2022:
- Added new Integrated B.S. in Nutritional Sciences and M.P.S. in Nutritional Sciences
- Added new Integrated B.S. in Nutritional Sciences and M.P.H. in Public Health

Effective Fall 2022:
- Added HM 230 to Prescribed Courses in the Nutrition and Dietetics Option
• Removed HM 329 from Prescribed Courses in the Nutrition and Dietetics Option

**Occupational Therapy, A.S. (University College, Berks) (2OTUC_AS, 2OTBK_AS)**
**Effective Fall 2022:**

• Revised Entrance to Major Requirements
• Added Retention Requirements
• Increased total requirements for degree completion from 69 credits to 71 credits
• Increased Requirements for the Major from 60 credits to 62 credits
• Increased Prescribed Courses from 57 credits to 59 credits
• Added OT 295B to Prescribed Courses
• Removed KINES 13, OT 395 B from Prescribed Courses
• Changed OT 212 from 3 credits to 4 credits in Prescribed Courses
• Changed OT 214 from 3 credits to 4 credits in Prescribed Courses
• Changed OT 295E from 1 credits to 2 credits in Prescribed Courses

**Organizational Leadership, B.A. (OLBA_BA)**
**Effective Summer 2022:**

• Changed Electives from 21-24 credits to 9-14 credits
• Changed Requirements for the Major from 36-37 credits to 40-41 credits
• Increased Prescribed Courses from 12 credits to 21 credits
• Added OLEAD 201, OLEAD 210, PSYCH 100, PSYCH 484 to Prescribed Courses
• Removed OLEAD 409 from Prescribed Courses
• Increased Additional Courses from 12-13 credits to 16 credits
• Added IST 110, PHIL 10, LHR 202, PSYCH 281 to Additional Courses
• Removed MGMT 321, PSYCH 484 from Additional Courses
• Decreased Supporting Courses and Related Areas from 12 credits to 3-4 credits
• Removed CAS 404, CAS 452, CAS 475, CRIM 100, CRIM 113, CRIM 482, LER 100, 136, 201, LER 312, LER 400, LER 434, LER 435, LER 437, LER 458Y, LER 460, MGMT 321, PHIL 103, PHIL 119, PLSC 1, PLSC 490, PSYCH 484, PSYCH 485, SOC 207, SOC 404, SOC 455, SOC 456 from Supporting Courses and Related Areas

**Organizational Leadership, B.S. (OLBS_BS)**
**Effective Summer 2022:**

• Changed Electives from 16-18 credits to 20-21 credits
• Changed Requirements for the Major from 64-66 credits to 61-62 credits
• Added LHR 312, OLEAD 201, OLEAD 210, PSYCH 484 to Prescribed Courses
• Removed CAS 352, ECON 102, ECON 104, OLEAD 409, PHIL 10, PSYCH 281 from Prescribed Courses
• Changed credits for Additional Courses from 12-13 credits to 15 credits
• Added PHIL 10, IST 110, LHR/AFAM/WMNST 136, OLEAD 220, OLEAD 410, OLEAD 411, WMNST 105N, LHR 202, PSYCH 281, LHR 437, BA 100, LHR 427 to Additional Courses
• Removed LER 312, SOC 207, MGMT 321, PSYCH 484 from Additional Courses
• Removed CAS 404, CAS 452, CAS 475, CRIM 100, CRIM 113, CRIM 482, LER 100, LER 136, LER 201, LER 312, LER 400, LER 434, LER 435, LER 437, LER 458Y, LER 460, MGMT 321, PHIL 103, PHIL 119, PLSC 1, PLSC 490, PSYCH 484, PSYCH 485, SOC 207, SOC 404, SOC 455, SOC 456 from Supporting Courses

**Pharmacology and Toxicology, B.S. (TOX_BS)**
**Effective Fall 2022:**

• Decreased total requirements for degree completion from 124 credits to 120 credits
• Changed Requirements for the Major from 92-94 credits to 88-91 credits
• Decreased Prescribed Courses from 78 credits to 71 credits
• Added VBSC 331, BMB 433, CHEM 213W, VBSC 431 to Prescribed Courses
• Removed BIOL 240W, BIOL 472, CHEM 213, VBSC 451 from Prescribed Courses
• Increased Additional Courses from 5-7 credits to 8-11 credits
• Added BIOL 141, BIOL 240W to Additional Courses

**Physical Therapist Assistant, A.S. (2PTA_AS)**
**Effective Summer 2022:**

• Program phased out at DuBois campus

**Effective Fall 2022:**

• Revised Entrance to Major Requirements
• Added Retention Requirements
• Decreased Prescribed Courses from 45 credits to 41 credits
• Increased Additional Courses from 16 credits to 20 credits
• Moved PT 395F from Prescribed Courses to Additional Courses
• Added PT 395H and PT 395I to Additional Courses

**Plastics Engineering Technology, B.S. (PLTBC_BS)**
**Effective Summer 2022:**

• Changed Requirements for the Major from 105 credits to 106 credits
• Changed Electives from 2 credits to 1 credit
• Changed PLET 345 from 2 credits to 3 credits in Prescribed Courses

**Political Science, B.A. (Altoona) (PLSAL_BA)**
**Effective June 15, 2022:**

• Enrollment Hold implemented at Penn State Altoona, the Altoona College; program not accepting new students at Penn State Altoona, the Altoona College

**Psychological and Social Sciences, B.A. (PSSBA_BA)**
**Effective Fall 2022:**

• Revised Supporting Courses and Related Areas

**Psychological and Social Sciences, B.S. (PSSBS_BS)**
**Effective Fall 2022:**

• Changed Electives from 15-17 credits to 8 credits
• Changed Requirements for the Major from 67-68 credits to 71 credits
• Changed General Education credits included in Requirements for the Major from 7-8 credits to 3 credits
• Decreased Prescribed Courses from 17 credits to 10 credits
• Removed MATH 110, SOC 471 from Prescribed Courses
• Increased Additional Courses from 29-30 credits to 34 credits
• Added BIOL 133, 155, 161, 169N, ANTH 408, ANTH 421, ANTH 428, ANTH 48, HDFS 401, HDFS 415, PSYCH 404, PSYCH 406W, PSYCH 407, PSYCH 408, PSYCH 439, PSYCH 492, SOC 405, SOC 413, SOC 423, SOC 470, SOC 471 to Additional Courses
• Removed BIOL 110, BIOL 141, BIOL 142, CAS 352, CAS 455 from Additional Courses
• Increased Supporting Courses and Related Areas from 21 credits to 27 credits
• Added ANTH 408, ANTH 446, ANTH 476, ANTH 497, ANTH 499, HDFS 415, HDFS 429, HDFS 499, PSYCH 408, PSYCH 434, PSYCH 466, PSYCH 473, PSYCH 474, PSYCH 476, PSYCH 492, PSYCH 499, SOC 408, SOC 413, SOC 432, SOC 445, SOC 446, SOC 447, SOC 451, SOC 454, SOC 459, SOC 467, SOC 470, SOC 472, SOC 477, SOC 478, and SOC 499 to Supporting Courses and Related Areas. Remove ANTH 2, 11, 22, 40, 146, 197, 199, 216, 321, 380, 395, BB H 302, 315, CAS 352, 415, 455, CNED 404, COMM 100, COMM 120, COMM 411, EDPSY 14, HDFS 229, HDFS 239, HDFS 249, HDFS 250, HDFS 315, HDFS 432, HDFS 468, PSYCH 221, PSYCH 281, PSYCH 412, PSYCH 415, PSYCH 426, PSYCH 441, PSYCH 478, PSYCH 485, PSYCH 496B, SOC 3, SOC 30, SOC 35, SOC 103, SOC 109, SOC 110, SOC 309, SOC 403, SOC 406, SOC 429, SOC 430, SOC 455, and WMNST 471 from Supporting Courses and Related Areas

Psychology, B.S. (Capital) (PSYC_BS)
Effective Spring 2023:
• Added BIOL 161, PSYCH 495 to Additional Courses
• Changed WMNST 101 to WMNST 101N in Supporting Courses and Related Areas
• Changed WMNST 116 to WMNST 116N in Supporting Courses and Related Areas
• Removed WMNST 426Y from Supporting Courses and Related Areas

Race and Ethnic Studies, B.A. (RETHS_BA)
Effective Fall 2022:
• New program added

Radiological Sciences, A.S. (2RSUC_AS)
Effective Fall 2022:
• Revised Entrance to Major Requirements
• Added Retention Requirements
• Changed total requirements for degree completion from 68 credits to 67 credits
• Changed Requirements for the Major from 62 credits to 61 credits
• Decreased Supporting Courses and Related Areas from 9 credits to 8 credits
• Changed RADSC 295C and RADSC 295F from 2 credits to 1.5 credits in Supporting Courses and Related Areas

Real Estate, B.S. (REST_BS)
Effective Fall 2022:
• New program added

Russian, B.A. (RUS_BA)
Effective Fall 2022:
• Revised Program Description
• Increased Requirements for the Major from 28 credits to 29 credits
• Decreased Electives from 23 credits to 22 credits

• Increased Prescribed Courses from 13 credits to 17 credits
• Removed RUS 400 from Prescribed Courses
• Added RUS 420 to Prescribed Courses
• Decreased Additional Courses from 15 credits to 12 credits
• Moved RUS 401 from Additional Courses to Prescribed Courses
• Removed RUS 402, RUS 403 from Additional Courses

Russian, Minor (RUS_UMNR)
Effective Summer 2022:
• Revised Program Description
• Added Entrance to Minor requirements
• Increased Requirements for the Minor from 19 credits to 20 credits
• Increased Prescribed Courses from 7 credits to 11 credits
• Added RUS 401 to Prescribed Courses
• Added RUS 101N, RUS 110, RUS 144, RUS 145 to Additional Courses
• Decreased Supporting Courses and Related Areas from 9 credits to 6 credits

Russian Translation, B.S. (RUST_BS)
Effective Fall 2022:
• Program phased out

Russian Translation, Minor (RUST_UMNR)
Effective Fall 2022:
• Program phased out

Science, B.S. (Altoona) (SCIAL_BS)
Effective June 15, 2022:
• Enrollment Hold implemented at Penn State Altoona, the Altoona College; program not accepting new students at Penn State Altoona, the Altoona College

Science, B.S. (Science) (SCBS_BS)
Effective Summer 2022:
• Life Sciences option phased out at University Park campus

Social Work, BSW (SOCWK_BSW)
Effective Summer 2022:
• New program added

Special Education, B.S. (SPLED_BS)
Effective Spring 2023:
• Revised Program Description
• Revised Entrance to Major Requirements
• Increased Requirements for the Major from 86 credits to 89 credits
• Changed General Education credits included in Requirements for the Major from 12-15 credits to 18 credits
• Changed Electives from 3 credits to 6 credits
• Decreased Prescribed Courses from 86 credits to 83 credits
• Added CI 280, SPLED 410, SPLED 415, SPLED 495D to Prescribed Courses
• Removed EDPSY 421, SPLED 408 from Prescribed Courses
• Changed SPLED 412, SPLED 454, SPLED 425 from 4 credits to 3 credits
• Changed total requirements for degree completion from 124 credits to 120 credits
• Changed Requirements for the Major from 80-95 credits to 81-94 credits
• Added 0-1 credits of Electives
• Increased Common Requirements for the Major (All Options) from 38-41 credits to 39-42 credits
• Increased Prescribed Courses for the Major from 37-38 credits to 38-39 credits
• Increased the number of credits for STAT 184 in Prescribed Courses for the Major from 1 credit to 2 credits
• Added STAT 300, STAT 400 to Prescribed Courses for the Major
• Removed STAT 461, STAT 462 from Prescribed Courses for the Major
• Changed STAT 470 to STAT 470W in Prescribed Courses for the Major
• Changed the Actuarial Statistics Option from 53 credits to 48 credits
• Added CMPSC 131, BBH/HPA 440, CMPSC 448, RM 415, RM 420 to Additional Courses in the Actuarial Statistics Option
• Removed CMPSC 202 from Additional Courses in the Actuarial Statistics Option
• Changed Supporting Courses and Related Areas in the Actuarial Statistics Option from 13 credits to 8 credits
• Changed the Applied Statistics Option from 47 credits to 42 credits
• Added CMPSC 131, BBH/HPA 440, CMPSC 448, RM 415, RM 420 to Additional Courses in the Applied Statistics Option
• Removed CMPSC 202 from Additional Courses in the Applied Statistics Option
• Changed Supporting Courses and Related Areas in the Applied Statistics Option from 32 credits to 27 credits
• Changed the Biostatistics Option from 56-57 credits to 50-52 credits
• Added CMPSC 131, BBH/HPA 440, CMPSC 448, RM 415, RM 420 to Additional Courses in the Biostatistics Option
• Removed CMPSC 202 from Additional Courses in the Biostatistics Option
• Changed Supporting Courses and Related Areas in the Applied Statistics Option from 19-20 credits to 14-15 credits
• Changed the Graduate Study Option from 47 credits to 42 credits
• Added CMPSC 131, BBH/HPA 440, CMPSC 448, RM 415, RM 420 to Additional Courses in the Graduate Study Option
• Removed CMPSC 202 from Additional Courses in the Graduate Study Option
• Changed Supporting Courses and Related Areas in the Graduate Study Option from 14 credits to 9 credits
• Changed the Statistics and Computing Option from 47 credits to 42 credits
• Added CMPSC 131 and CMPSC 132 to Prescribed Courses in the Statistics and Computing Option
• Removed CMPSC 121 and CMPSC 122 from Prescribed Courses for the Statistics and Computing Option

Statistics, B.S. (STAT_BS)
Effective Summer 2022:

• Added BB/H/PA 440, CMPSC 448, RM 415, RM 420 to Additional Courses in the Statistics and Computing Option
• Changed Supporting Courses and Related Areas in the Statistics and Computing Option from 14 credits to 9 credits

Telecommunications and Media Industries, B.A. (TELCM_BA)
Effective Summer 2022:

• Added COMM 170, COMM 305, COMM 388, COMM 482 to Additional Courses
• Removed COMM 242, COMM 404, COMM 492 from Additional Courses
• Added COMM 305 to Supporting Courses and Related Areas
• Removed COMM 403, COMM 411 from Supporting Courses and Related Areas

Theatre, B.A. (THRBA_BA)
Effective Fall 2022:

• Decreased Requirements for the Major from 40.5-42 credits to 36.5-38 credits
• Changed Electives from 12-13.5 credits to 16-17.5 credits
• Decreased Prescribed Courses from 12 credits to 11 credits
• Changed THEA 289 from 2 credits to 1 credit in Prescribed Courses
• Removed THEA 220 from Acting selection in Additional Courses
• Added THEA 220 to Theatre and Performance Praxis selection in Additional Courses
• Removed DANCE 381 to Theatre and Performance Praxis selection in Additional Courses
• Removed History and Theory selection from Additional Courses
• Added Theatre and Dance History selection and Literature and Theory selection to Additional Course
• Decreased Dance Theory and Technique selection from 8.5-9 credits to 1.5-3 credits in Additional Courses
• Changed DANCE 221 from 1 credit to 1.5 credits in Dance Theory and Technique selection in Additional Courses

Visual Art Studies, B.A. (VAST_BA)
Effective Spring 2023:

• Changed Requirements for the Major from 45 credits to 46 credits
• Changed Electives from 13 credits to 12 credits
• Decreased Prescribed Courses from 42 credits to 40 credits
• Increased Additional Courses from 3 credits to 6 credits
• Added GD 100, GD 101 to Prescribed Courses
• Removed ART 168, ART 468 from Prescribed Courses
• Moved ART 166 from Prescribed Courses to Additional Courses
• Added ART 30, ART 80 to Additional Courses

Vocal Studies, Minor (VOCST_UMNR)
Effective Fall 2022:

• New minor added

Wildlife Technology, A.S. (2WLT_AS)
Effective Spring 2023:

• Increased total requirements for degree completion from 65 credits to 65.5 credits
• Increased Requirements for the Major from 53 credits to 53.5 credits
• Increased Prescribed Courses from 46 credits to 46.5 credits
• Changed KINES 13 from 1 credit to 1.5 credits in Prescribed Courses

Worklink Strategies and Employability, Certificate (WKLNK_UCT)
Effective Summer 2022:
• New certificate added

FAQs

1. Where can I find a list of General Education courses and information about requirements?
   • For information about General Education requirements, please see the General Education (https://bulletins.psu.edu/undergraduate/general-education/) section in this Bulletin.

2. The General Education requirements have changed. Do the new requirements apply to me?
   • The new General Education requirements apply to students who start at Penn State in Summer 2018 and later. Requirements have not changed for students who began at Penn State before this semester. The older set of requirements can be found in the Archives page. Additional information is available on the Office of General Education website (https://gened.psu.edu).

3. What does the blue keystone symbol mean?
   • The keystone indicates that the course is designated as a General Education course. See the degree requirements for your program to identify the General Education courses that are required. Not all courses marked with the keystone count as meeting General Education requirements when required within your program. See the program requirements and speak to an adviser regarding General Education courses that count or do not count toward the General Education requirements.

4. Where can I find bachelor of arts degree requirements?
   • Bachelor of arts degree requirements are included in the program requirements section for B.A. programs. You may also see the B.A. requirements in the Academic Information (https://bulletins.psu.edu/undergraduate/general-information/academic-information/) section.

5. Where can I find a list of courses and course descriptions?
   • You may find courses and descriptions several different ways within the Bulletin. You may navigate to the full listing of courses and descriptions from the Courses (https://bulletins.psu.edu/university-course-descriptions/) link in the top navigation menu. You may also scroll over any course number within the Bulletin to see the course description in a course bubble. Search for specific courses through the search option on the homepage or in the search functions throughout the Bulletin.

6. Which Undergraduate Bulletin should I use?
   • Your official record of general education requirements, University degree requirements, and program requirements is found in the Bulletin that matches the semester in which you enrolled at Penn State. See the Archive (https://bulletins.psu.edu/undergraduate/archive/) page to find past Bulletins.

7. Where can I find past Bulletins?
   • Past Bulletins can be found on the Archive (https://bulletins.psu.edu/undergraduate/archive/) page, which can be accessed from any page in the Bulletin’s top navigation menu.

8. When will the Undergraduate Bulletin be updated?
   • The Bulletin will be updated at the beginning of each semester (fall, spring, and summer). Changes that occur between updates are identified on the Changes (p. 6) page.

9. What course description information is currently showing in the Bulletin?
   • The University Bulletins shows course description data that is active as of the most recently released Schedule of Courses. When an upcoming semester’s Schedule of Courses is released, the course description information is updated on the same day to match that course data. Please visit the Understanding Course Description Information (p. 2) page to view the course description update calendar.

10. Why are there some courses listed in the Bulletin I can’t schedule?
    • The Bulletin Course Description section displays all courses that are currently active at Penn State. Not all of these courses are taught every academic semester or year. To view courses that are available for enrollment by semester, please view the LionPATH Class Search (https://www.lionpath.psu.edu/psc/CSPRD/EMPLOYEE/HRMS/c/SA_LEARNER_SERVICES.CLASS_SEARCH.GBL?Page=SSR_CLSRCH_ENTRY&Action=U).

11. Where can I find information about minors?
    • Minors are a specific type of program and may be found through the search process by filtering by minor (https://bulletins.psu.edu/programs/#filter=filter_24).

12. Where can I find the Graduate Bulletin?
    • The Graduate Bulletin is located at: https://bulletins.psu.edu/graduate (https://bulletins.psu.edu/graduate/).

Have a question we didn’t include? Please let us know by emailing bulletins@psu.edu.