

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.

Learn more in the Definitions and Abbreviations (p. 2) section.

Campus

Penn State has over 20 campuses across Pennsylvania. Visit the Campus (<https://bulletins.psu.edu/undergraduate/campuses/>) page to see the full listing and a brief description of each campus.

Interest

Search broad topics to discover programs associated with your interests. From helping people, to science, or business, select an area to help narrow down your academic choices.

College

Academic colleges at Penn State grant degrees and are generally organized around a subject matter. All Penn State majors are divided among academic colleges, which are the units from which students receive their degrees. Visit the College (<https://bulletins.psu.edu/undergraduate/colleges/>) page to see the full listing.

Academic Authority

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

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

MORE INFORMATION ABOUT ACADEMIC AUTHORITY (<https://undergrad.psu.edu/aappm/P-8-program-descriptions-catalog.html>)

Understanding Course Description Information

The course description data that appears in the University Bulletins is directly imported from LionPATH, the student information system. At several times within an academic year, new or updated course description information is approved by the Faculty Senate and entered into LionPATH. This updated information subsequently appears in the University Bulletins on the date(s) it takes effect.

What course description data is currently showing in the University Bulletins?

There are three course effective dates within an academic year. These effective dates correspond to the first day of the summer, fall, and spring semesters. The University Bulletins shows course description data that is active as of the current semester. On the date a new semester begins, the

course description information is updated on the same day to match that course data.

Course Description Update Calendar

May 8, 2023: University Bulletins begins showing course description information that is active for the Summer 2023 semester

August 14, 2023: University Bulletins begins showing course description information that is active for the Fall 2023 semester

December 18, 2023: University Bulletins begins showing course description information that is active for the Spring 2024 semester

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. The Bachelor of Philosophy

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 (<https://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.

Code	Explanation
A	Special topics (course suffix; indicates different versions of the same course, e.g., CAS 100A, CAS 100B, CAS 100C)
A & A	Arts and Architecture (college abbreviation)
AA	Arts and Architecture (college code)
AAPPM	Academic Administrative Policies and Procedures Manual
AB	Abington (campus code)
AB	Abington (college code)
ACUE	Administrative Council on Undergraduate Education
AG	Agricultural Sciences (college code)
AL	Altoona (campus code)
AL	Altoona (college code)
AP	Advanced Placement Program
APPL	Course requires an application with the School of Music (course characteristic)
APPT	By appointment (class meeting time)
AU	Audit, attended regularly (grade reporting symbol)
AUDN	Course requires an audition (course characteristic)
AUU	Audit, did not attend regularly (grade reporting symbol)
B	Special topics (course suffix; indicates different versions of the same course, e.g., CAS 100A, CAS 100B, CAS 100C)
BA	Business, Smeal College of (college code)
BC	Behrend (college code)
BK	Berks (campus code)
BK	Berks (college code)
BR	Beaver (campus code)
BW	Brandywine (campus code)
C	Special topics (course suffix; indicates different versions of the same course, e.g., CAS 100A, CAS 100B, CAS 100C)
CA	Capital (college code)
CALC	Course requires a calculator (course characteristic)
CAMP	College Assistance Migrant Program
CAT	Online catalog, University Libraries
CC	Commonwealth Campuses

CCP	College Contact Person	F	Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297F, HIST 297G)
CCRR	College Contact and Referral Representative	FE	Fayette (campus code)
CCSG	Council of Commonwealth Student Governments	FINL	Course has a final exam (course characteristic)
CE	Continuing Education	FL	Failure under pass/fail option (grade reporting symbol)
CGPA	Cumulative grade-point average	FYS	First-Year Seminar
CIC	Committee on Institutional Cooperation	G	Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297F, HIST 297G)
CLEP	College-Level Examination Program	GA	Arts (General Education code)
CM	Communications (college code)	GA	Greater Allegheny (campus code)
CNCR	Course is scheduled concurrently with another course (course characteristic)	GH	Humanities (General Education code)
CNTL	Course is controlled (course characteristic)	GHW	Health and Wellness (General Education code)
COMM	Communications (college abbreviation)	GN	Graduate non-degree (college code)
CORD	Course is coordinated with other course(s) (course characteristic)	GN	Natural Sciences (General Education code)
COST	Course requires an additional fee (course characteristic)	GPA	Grade-point average
D	Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297D, HIST 297E)	GQ	Quantification (General Education code)
DAA	Dean/Director of Academic Affairs	GR	Graduate (level code)
DF	Deferred grade (grade reporting symbol)	GR ND	Graduate non-degree (college code)
DN	Dickinson School of Law (campus code)	GS	Social and Behavioral Sciences (General Education code)
DS	DuBois (campus code)	GV	Great Valley (campus code)
DU	Division of Undergraduate Studies (college code)	GV	Great Valley (college code)
D U S	Division of Undergraduate Studies (college abbreviation)	GWS	Writing/Speaking (General Education code)
E	Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297D, HIST 297E)	H	Honors course or section (course suffix)
ECoS	Eberly College of Science	HB	Harrisburg (campus code)
ED	Education (college code)	H H D	Health and Human Development (college abbreviation)
EM	Earth and Mineral Sciences (college code)	HH	Health and Human Development (college code)
EM SC	Earth and Mineral Sciences (college abbreviation)	HN	Hazleton (campus code)
EN	Engineering (college code)	HY	Hershey Medical Center (campus code)
ENGR	Engineering (college abbreviation)	I	Incomplete (grade reporting symbol)
EOP	Educational Opportunity Program	I	Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297I, HIST 297K)
EPR	Early Progress Report	I COL	Intercollege programs (college abbreviation)
EPS	Educational Planning Survey	IB	International Baccalaureate Program
ER	Behrend (campus code)	IC	Intercollege programs (college code)
ESL	English as a Second Language		
EVEX	Course has evening exams (course characteristic)		

IL	International Cultures (General Education code)	P	Pass (noncredit course) (grade reporting symbol)
INCP	Incomplete (grade reporting symbol)	P	Practicum (or laboratory) section (course suffix)
INTG	Course is integrated with other courses (course characteristic)	PC	Penn College (Pennsylvania College of Technology; campus code)
IS	Information Sciences and Technology (college code)	PREQ	Course has prerequisites (course characteristic)
IST	Information Sciences and Technology (college abbreviation)	PS	Pass (pass/fail option) (grade reporting symbol)
ITS	Information Technology Services	PSU	Pennsylvania State University
IUG	Integrated undergraduate/graduate degree programs	R	Recitation section (course suffix)
IVID	Course uses interactive video (course characteristic)	R	Research (grade reporting symbol)
J	Individualized instruction (course suffix)	RAP	Recommended Academic Plan
K	Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297I, HIST 297K)	RI	Resident Instruction
L	Lecture section (course suffix)	ROTC	Reserve Officers' Training Corps
LA	Liberal Arts (college code)	S	First-Year Seminar (course suffix)
LEAP	Learning Edge Academic Program	SA	Satisfactory achievement (grade reporting symbol)
LIAB	Course has liability attendance policy (course characteristic)	SATL	Course is offered at multiple locations via satellite uplink (course characteristic)
LV	Lehigh Valley (campus code)	SC	Science, Eberly College of (college code)
LW	Law (level code)	SCIEN	Science, Eberly College of (college abbreviation)
M	Writing Across the Curriculum and Honors (course suffix)	SEGM	Course is segmented (course characteristic)
MA	Mont Alto (campus code)	SGPA	Semester grade-point average
MAC	Morgan Academic Center (for Student-Athletes)	SH	Shenango (campus code)
MD	Medical (level code)	SI	Supplemental Instruction
MD	Medicine (college code)	SITE	Schreyer Institute for Teaching Excellence
MED	Medicine (college abbreviation)	SL	Schuylkill (campus code)
MEP	Multicultural Engineering Program	SLO	Special Living Options
MRC	Multicultural Resource Center	SOTP	Student Orientation and Transition Programs
MS	Military Science (ROTC) (college code)	SRTE	Student Ratings of Teacher Effectiveness
NACADA	National Academic Advising Association	SSSP	Student Support Services Program
NC	Non-credit (level code)	T	First-Year Seminar and Honors (course suffix)
NDEGR/C/H	Nondegree Regular/Conditional/High School (Classification of Undergraduate Students)	TMDT	Course has additional meeting times/dates (course characteristic)
NG	No grade (grade reporting symbol)	U	United States Cultures/International Cultures and Honors (course suffix)
NK	New Kensington (campus code)	UAO	Undergraduate Admissions Office
NR	Nursing (college code)	UC	University College (college code)
NSO	New Student Orientation	UE	Undergraduate Education
OCLC	Course meets at an off-campus location (course characteristic)	UFO	University Fellowships Office
ODS	Office for Disability Services	UG	Undergraduate (level code)
OSA	Office of Student Aid	UG ND	Undergraduate non-degree (college code)
OUR	Office of the University Registrar	UN	Undergraduate nondegree (college code)

UN	Unsatisfactory achievement (grade reporting symbol)
UP	University Park (campus code)
UPUA	University Park Undergraduate Association
US	United States Cultures (General Education code)
W	Official withdrawal (grade reporting symbol)
W	Writing Across the Curriculum (course suffix)
WB	Wilkes-Barre (campus code)
WC	World Campus
WEB	Web course; offered entirely through the Internet (course characteristic)
WEP	Women in Engineering Program
WF	Withdrew failing (grade reporting symbol)
WISE	Women in the Sciences and Engineering
WN	Withdrew no grade (grade reporting symbol)
WP	Withdrew passing (grade reporting symbol)
WS	Worthington Scranton (campus code)
X	Writing Across the Curriculum and First-Year Seminar (course suffix)
XC	State College Continuing Education (campus code)
XF	Failure, academic dishonesty (course grade)
XS	Foreign studies program (campus code)
Y	Writing Across the Curriculum course and United States Cultures/ International Cultures (course suffix)
YK	York (campus code)

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 2023

- BBH 123S: First-Year Seminar in Biobehavioral Health
- BIOL 440: Evolution of Infectious Diseases
- BIOL 442: Evolutionary Medicine
- BIOL 445: Molecular Ecology
- CIVCM 494: Research Topics

- COMM 232: Communication Strategies for Social Justice
- COMM 432: Social Justice Media Project
- CSD 432: Introduction to Deglutition
- ECE 295: Field Experience for Practicing Early Childhood Educators
- ENGL 118: Music and Literature
- ENGL 126: Bad Literature
- ENGL 144: Everyday Rhetoric
- ENGR 291: The Role of the Engineering Peer Advising Leader
- ENT 495: Entomology Internship
- FRNSC 485: The Profession of Forensic Science
- GD 407: Graphic Design Studio – Communities
- HHUM 294: Research Project
- HHUM 297: Special Topics
- HHUM 494: Research Project
- HPA 200: An Introduction to Data in the Health Care System
- HRM 495: Internship in Human Capital Management
- KINES 53N: History and Practice of Martial Arts
- KINES 123S: Thinking Critically about Key Questions in Kinesiology
- LING 410: Morphology
- LING 414: Phonetic Analysis: Acoustic and Auditory Phonetics
- MATSE 203: Technical Communications
- MATSE 429: Non-Ferrous Structural Metals
- MTHED 299: Mathematics in Elementary School
- NUTR 251H: Introd Prin Nutrition (honors)
- OS 410: Foundations of Occupational Science and Therapy
- OS 420: Occupational Constructs: Habits, Routines, Roles & Rituals
- OS 430: Perspectives of Culture, Equity & Spirituality
- OS 440: Human Behavior: Creativity and Flow
- OS 450: Applied Occupational Science Capstone
- PNG 488: Unconventional Wells
- PSYCH 448: Psychology of Female Serial Killers
- RPTM 310: Experience Design and Event Management
- SCM 495: Internship in Supply Chain Management
- SPAN 269N: Theater and Performance

Courses Added: Effective Fall 2023

- ARTH 101N: Introduction to Global Art History
- ASIA 472: Tradition, Modernity, and Cultural Change in South Asian Societies
- ASTRO 237: Astronomy Communications
- CHEM 109: A Research Experience in Chemistry
- CI 197: Special Topics
- CMPSC 263: Blockchain and Modern Web Development
- CSD 250: Professional Issues in Communication Sciences and Disorders
- CSD 251: Guided Clinical Observations in Communication Sciences and Disorders
- CSD 428: American Sign Language IV
- DANCE 405: Conditioning, Self-Defense, and Combat for Theatre
- EME 210: Data Analytics for Energy Systems
- EDTHP 410: The Global Impact of Education
- EMET 351: Quality Control, Inspection, and Design
- EMET 433: Smart Manufacturing

- EMET 441: Mechatronics Project Design
- EMET 442: Mechatronics Project Implementation
- EMSC 460: Environmental Data Analytics
- ENGL 114: Modern Pagan Traditions and Texts
- ENGL 125: On the Farm: Agriculture and Literature
- ENGR 287: Career Preparation and Development for Engineers
- GD 211: Design Photo and Motion
- GD 409: Exhibition and Portfolio
- HDFS 215N: Global health and families
- HPA 494: Undergraduate Research Project
- KINES 53N: History and Practice of Martial Arts
- MATH 32: Math for Allied Health Professions
- MATH 316: Upperclass Seminar: Careers, Graduate Study, and Opportunities in Mathematics
- MATH 400: Teaching in Mathematics
- MATSE 219: Introduction to Materials Informatics
- NUCE 321: Introduction to Thermal-Fluid Sciences for Nuclear Engineers – I
- NUCE 322: Introduction to Thermal-Fluid Sciences for Nuclear Engineers – II
- NURS 240: Medication Calculations for Nurses
- NUTR 144: Our Plates: Exploring Food and Healthy Eating Patterns Through Cooking
- NUTR 372: Nutrient Metabolism
- NUTR 487: Advanced Performance Nutrition
- PUBPL 472: Labor Markets and Public Policy
- SPAN 423: Spanish in Contact with Other Languages
- THEA 448: Theatre Management
- WMNST 230N: Dangerous Bodies
- WMNST 440W: Women in Global Cities

Courses Added: Effective Spring 2024

- ABSM 297: Special Topics
- AE 483: Comprehensive Architectural Engineering Senior Project II – IUG
- CI 288: Foundations of Teaching Multilingual Learners
- CI 388: Sociopolitical Contexts of Teaching Multilingual Learners
- CI 397: Special Topics
- CI 488: Designing Assessment and Curriculum for Multilingual Learners
- ENGR 191: Millennium Scholars Summer Seminar
- ENGR 192: Millennium Scholars First-Year Seminar
- ENT 320: Insects and Natural History Collections
- FRNSC 460: Medicolegal Death Investigation
- GD 211: Design Photo and Motion
- GEOSC 414: Carbonate Geochemistry
- LING 382: Language and Culture in Africa
- MATSE 449: Fundamentals of Composite Materials Science and Engineering
- PLSC 479: Nuclear Weapons in International Relations
- SOC 381H: Junior Honors Seminar in Sociology
- SPAN 425: The Spanish Your Teachers Never Taught You
- SUR 121: Elementary Surveying
- SUR 122: Control Surveying

- SUR 132: Surveying Software Analysis Tools
- SUR 213: Route and Construction Surveying
- SUR 221: Large-scale Mapping Surveys
- SUR 352: Geometric and Physical Geodesy
- SUR 361: Surveying Laser Scanning
- SUR 373W: Cadastral and Legal Aspects of Surveying
- SUR 382: Subdivision Design
- SUR 421: Advanced Photogrammetry
- SUR 424: Monitoring Applications in Surveying
- SUR 432: Geospatial Applications in Surveying
- WILDL 294: Undergraduate Research in Wildlife Abbreviated

Courses Dropped: Effective Summer 2023

- ARCH 431: Architectural Design V
- ARCH 432: Architectural Design VI
- ERM 426/PLANT 426: Nutrient Management Specialist Preparation

Courses Dropped: Effective Fall 2023

- ASM 424H: Selection and Management of Agricultural Machinery

Courses Dropped: Effective Spring 2024

Course Changes: Effective Fall 2023

ANSC 413: Transgenic Biology (3 Credits)

Old Listing Effective Through Summer 2023:

The principles and concepts used to generate genetically engineered animals by pronuclear, knockout, and cloning methods; and applied biotechnology applications. ANSC 413 Transgenic Biology (3) The Transgenic Biology course is offered each spring semester for those students interested in learning the concepts, principles, and applications of genetic engineering in animals. The mouse is used as a model system, but the discussion encompasses large animals and commercial applications. Techniques covered are pronuclear, embryonic stem, and somatic-nuclear transfer generated animals. Content also includes the use of morpholinos and RNAi use to "knockdown" gene expression. Other systems discussed are Zebrafish and Xenopus as well as gene analysis by mutagenesis and gene trapping. The course objectives are (1) to provide the student with a working knowledge of the processes involved in functional analysis of gene expression using model animal systems and (2) to give the student understanding for the practical aspects of generating transgenic animals including microinjection, screening, breeding, and phenotypic analysis. Students are typically evaluated using several parameters including exams, presentations of current journal articles, abstracts of current journal articles, and a paper dealing with an aspect of transgenesis in the student's field of interest.

Changes Effective Fall 2023:

- Change Description
- Change Prerequisites

BIOL 177: Biology of Sex (3 Credits) (BA) (GN)

Old Listing Effective Through Summer 2023:

Basic structure and function of the human reproductive system. Physiology of gametogenesis, fertilization, contraception, gestation, parturition, lactation, and sexual behavior. BIOL 177 Biology of Sex (3) (GN)(BA) This course meets the Bachelor of Arts degree requirements. This course presents a thorough background on the basic structure and function of the human reproductive system, to provide the student with

sufficient scientific knowledge to understand and discuss sex-related topics and make informed personal decisions. Through lecture format presentations, multimedia presentations, small group activities, and guest presentation, students will be exposed to information that will clarify their understanding of the ways that their own body functions in sexual behavior and reproduction. In-class demonstrations and activities will be used to illustrate practical aspects of anatomical, health and contraception issues. Large class discussions, facilitated small group activities, and written assignments will encourage students to think critically and practically about the application of biological information to personal decision-making and to reducing their own risk of disease. Importantly, students will examine the roles of reproductive physiology and sexuality in a historical, cultural and social context, with particular emphasis on cultural and gender differences in anatomical forms, sexual expression, and disease susceptibility. Guest presentations from community groups will present current information about local reproductive and sex-related concerns and services. The course will present ongoing research on human sex and reproduction, and explore the biology behind current issues in human sexuality and medicine. Student evaluation is based on participation in activities, written assignments, and performance on four examinations. The course is divided into four units: Reproductive Anatomy and Physiology provides students with a thorough background in human reproductive anatomy and function. This unit sets the tone for the course, providing students with correct terminology and creating a nonjudgmental atmosphere that encourages active exploration of topics. Cross-cultural and gender comparisons are incorporated, and anatomical models provide clear, 3-dimensional interactive illustrations. Reproduction explains the biological issues surrounding fertilization, pregnancy, childbirth, and abortion. Following these topics are several class sessions focused on contraception, using anatomical models. Small-group activities and guest presentations to allow students to practice appropriate communication skills. Sexual Identity addresses issues of variations in anatomy, sexual identity, and sexual orientation both within and between cultures. The biological causes and physiological consequences of various physical and lifestyle manifestations are explored. Sexual Behavior examines the physiological basis of sexual response, and explores the variations and problems that are associated with human sexual behavior. Sexually transmissible infections are discussed, emphasizing their mode of transmission, identification, and treatment. Students are encouraged to apply the knowledge and skills they acquired through the semester to their decision-making and communication needs.

Changes Effective Fall 2023:

- Remove BA
- Change Description

BIOL 322: Genetic Analysis (3 Credits)

Old Listing Effective Through Summer 2023:

Recommended Preparations: At least one life science course. A discussion of the mechanisms of heredity in prokaryotes and eukaryotes with emphasis on analysis and modes of inference.

Changes Effective Fall 2023:

- Change Description
- Add Prerequisites

BIOL 472: Mammalian Physiology (3 Credits)

Old Listing Effective Through Summer 2023:

Physiology is the science explaining body function at system, organ, cellular, and biochemical levels. This course explores the fundamentals of mammalian physiology with an emphasis on human physiology and its clinical applications. The target audience is advanced undergraduate and graduate students studying in the life sciences, many of whom plan to study clinical medicine disciplines in the future. Physiology is an integrative science discipline and thus will apply principles developed in previous biology, chemistry, mathematics, and physics courses to problem solving situations. Core elements of this course include integrating science knowledge and applying science principles to develop a broad understanding of physiology systems and solve physiology problems.

Changes Effective Fall 2023:

- Change Title
- Change Abbreviated Title
- Change Description
- Change Prerequisites

CHEM 402: Chemistry in the Environment (3 Credits)

Old Listing Effective Through Summer 2023:

Chemistry of the atmosphere, natural waters, and the land surface with particular focus on human influence on processes occurring therein. CHEM 402 CHEM 402 Chemistry in the Environment (3) Fundamental and descriptive aspects of the sources, reactions, transport, and effects of chemical species, both natural and synthetic, in water, air, soil, and living systems, and the influence of human activities on these processes. The goal of the course is to gain an understanding of the theory and application of the fundamental processes that determine the distribution and transport of inorganic and organic substances in the environment; the techniques for determining important physicochemical properties that influence environmental fate; and the major sources of important classes of environmental chemicals. Rapid increases in technological sophistication have led to startling innovations in our everyday lives almost unthinkable a century ago. However, at the same time, advances in science and engineering have complicated how we live and react to the new technologies and, at times, force consideration of complex issues before our need for reflection. Approaching problems from different directions and perspectives is fundamental to our understanding of Earth processes. New and continued emphasis in global warming, loss of biodiversity, ozone layer depletion, acid mine drainage, sustainable development and energy use are only a few of the major environmental threats which require an intelligent and informed response. As such, the course provides a balanced discussion of the hard science and social sciences aspects of environmental issues.

Changes Effective Fall 2023:

- Change Title
- Change Description
- Change Prerequisites

CRIMJ 13: Juvenile Delinquency (3 Credits) (GS)

Old Listing Effective Through Summer 2023:

Juvenile conduct, causes of delinquency, current methods of treatment; organization and function of agencies concerned with delinquency.

Changes Effective Fall 2023:

- Change Description

CRIMJ 260: Statistical Analysis for the Social Sciences (3 Credits) (GQ)**Old Listing Effective Through Summer 2023:**

Methods of collection, presentation, and analysis of quantitative data in the social science; procedures, interpretation, and application. CRIMJ 260 Statistical Analysis for the Social Sciences (3) This course covers the theory and methodology of statistical analysis. This course includes mathematical calculation of Univariate and Bivariate models, including mean, mode median, variance and standard deviation, Crosstabs with Chi-Square, Independent and Paired Samples t-tests, Anova and Tukey's H.S.D, Correlation and Regression. It also makes use of SPSS and publically available data sets to examine univariate data, and test hypotheses at both the bivariate and multivariate level. Students become familiar with the calculations behind the analysis, and engage in the analysis and reporting of actual data.

Changes Effective Fall 2023:

- Change Prerequisites

CSD 494: Senior Honors Thesis (1-6 Credits)**Old Listing Effective Through Summer 2023:**

Independent study related to a student's interests directed by a faculty super supervisor and culminating in the production of a thesis. Approved Start: Fall 2016

Changes Effective Fall 2023:

- Change Title
- Change Abbreviated Title
- Change Description

EE 316: Introduction to Embedded Microcontrollers (3 Credits)**Old Listing Effective Through Summer 2023:**

Introduction to microcontrollers in electronic and electromechanical systems. Hardware and software design for user/system interfaces, data acquisition, and control.

Changes Effective Fall 2023:

- Change Prerequisites
- Change Concurrent

FR 299: Foreign Study–French (3-12 Credits) (IL)**Old Listing Effective Through Summer 2023:**

Writing practice at post intermediate level. Cultural readings about French civilization.

Changes Effective Fall 2023:

- Change Credits
- Change Description

FR 399: Foreign Study–French (3-12 Credits) (IL)**Old Listing Effective Through Summer 2023:**

Advanced training the French language skills.

Changes Effective Fall 2023:

- Change Credits
- Change Description

FR 499: Foreign Study–French (3-12 Credits) (IL)**Old Listing Effective Through Summer 2023:**

Advanced studies in French language and literature.

Changes Effective Fall 2023:

- Change Credits
- Change Description

GD 110: User Experience Design: Concepts and Principles (3-3 Credits: Maximum of 6 Credits)**Old Listing Effective Through Summer 2023:**

Students in this introductory course will study foundational concepts and methodologies in User Experience (UX) design and thinking. User experience (UX) design is the process designers use to create products that provide meaningful and relevant experiences to users and is rooted in the research and discovery of digital audiences, inclusive of enhancing user engagement and loyalty through usability, accessibility and product satisfaction. GD110 offers practical instruction focused on visual communications perspective, rather than one focused on programming alone. The process of designing user experiences within digital systems and applications will be explored and analyzed, as well as introductory knowledge in constructing design systems for various based on the needs of users. The course will feature iterative design processes to employ basic management techniques in working with product stakeholders for digital planning practices. GD 110 will provide foundation level instruction for concepts and principles that will be applied more broadly in GD 210.

Changes Effective Fall 2023:

- Change GA Attribute
- Change Title
- Change Abbreviated Title
- Change Description

HIST 424: Monotheism and the Birth of the West (3 Credits) (H) (BA)**Old Listing Effective Through Summer 2023:**

The birth of monotheism and its relation to social organization, the idea of individuality, and science. HIST (J ST/RL ST) 424H (PHIL 434H) Monotheism and the Birth of the West (3)(BA) This course meets the Bachelor of Arts degree requirements. Learn about the formation of Western culture while learning to analyze the texts and other evidence about its formation from a critical rather than naive viewpoint. The idea of monotheism probably arose very early, and was even briefly implemented as a state cultic policy in Egypt in the 14th century BCE. Why then did it take another seven centuries to become widespread—appearing in ancient Judah, Babylon and Ionia almost simultaneously? To answer this question, the course focuses on several developments through the medium of primary texts and archaeology: the shift from a state hinterland based in extensive agriculture and household processing to one organized for intensive agriculture and industrial processing the rise of recognizably modern science; the promotion of individuation and an international elite culture in the context of Assyrian and Babylonian imperial ambitions; the development of the historical and archaeological arts in the context of archaizing in order to re-invent local traditions; and the socialization of monotheism and of democracy. Students will

be evaluated on their discussion of the textual evidence as well as on reports in class and a final paper. This is the sole honors course treating the birth of the West. It expands on knowledge acquired in courses listed as prerequisites and in ANTH/CAMS 012; CAMS 044; ANTH/CAMS 133; CAMS/PHIL 200; HIST 100; HIST/J ST 102; and PHIL 200 and enriches the student experience in CAMS 400, CAMS 440, CAMS 480; HIST 402; J ST 411; PHIL 437; PHIL 453, and PHIL 461. This course counts toward the major in Jewish Studies, History, and Religious Studies and toward the minor in Jewish Studies and Religious Studies.

Changes Effective Fall 2023:

- Change Abbreviated Title
- Change Title
- Change Prerequisites
- Add United States and Intercultural Attribute: IL

HM 466: Human Resource Management in the Hospitality Industry (3 Credits) (US)

Old Listing Effective Through Summer 2023:

Recruitment, selection, training, performance appraisal, and compensation of hospitality human resources in today's culturally diverse work force.

Changes Effective Fall 2023:

- Change Abbreviated Title
- Change Description
- Change Prerequisites

HPA 332: Health Systems Management (3 Credits)

Old Listing Effective Through Summer 2023:

Health Systems Management provides you with an overview of how health care institutions are organized and governed, the role of the management staff, and the management systems designed for their efficient and effective operation. This course will build student competencies in management. By the end of the semester students will have an appreciation for the complexities in managing a health care organization. They will develop this awareness by both examining their own patterns of behavior and learning about many dynamics common within organizations, using both conceptual information from the text and by analyzing selected cases. Class activities will primarily focus on the application of concepts in a variety of different situations and settings. By the end of this class students will: 1) Understand management as a balance among competing goals in a variety of situations; 2) Display such critical managerial competencies as listening, providing feedback, managing time effectively and managing conflict; 3) Apply organizational behavior theories to situations in health care management; 4) Solve organizational challenges using quality improvement tools; 5) Synthesize financial and economic information to make decisions in health care organizations; and 6) Understand the process of making ethical decisions.

Changes Effective Fall 2023:

- Add Prerequisites

INART 50Z: The Science of Music (3 Credits) (BA) (GN)

Old Listing Effective Through Summer 2023:

Waves, physics of sound, hearing, musical scales, musical instruments, and room acoustics. INART 50Z The Science of Music (3) (GN)(BA) meets the Bachelor of Arts degree requirements and includes curricular links to MUSIC 11Z UNDER THE HOOD: HOW CLASSICAL MUSIC WORKS. This course explores the physical and acoustical bases of sound and music. The physics include a study of vibrating systems and simple harmonic motion, wave propagation, reflection and refraction, superposition, resonant frequencies, harmonics, phase, the relationship of speed and velocity, and spectra. The acoustics portion applies these physical properties to hearing, sound and music, covering the nature of the human auditory system, and correlations of pitch to frequency, loudness to amplitude/power/intensity, timbre to spectra and envelope. An overview of perceptual psychological studies of Gestalt organizational principles and auditory streaming explores how the auditory system organizes sound on a primitive, unlearned level. NOTE: there need be no specific math prerequisite for the course. Though high school algebra and trigonometry will be recommended, these topics will be integrated with the rest of the course material. With physical and physiological groundwork laid, the subject matter moves to purely musical areas: the construction of musical scales, the nature of consonance, dissonance, and harmony. Twelve-tone equal temperament, the basis of Western common practice music, is not an absolute, but a decision made to facilitate certain musical choices, and a compromise in terms of optimal consonance. The nature of the different instruments is then discussed – strings, winds, brass, percussion, and voice. Different instruments naturally produce different scale types and different types of spectra. Students will learn to appreciate the inherent differences in different instrument types. The course then returns to acoustics, exploring the role that performance spaces play in the propagation and reception of sound. The shape and materials of a room determine its characteristic sound. Students learn about how sound in large auditoriums is characterized by the balance of direct and reflected sound, the distinction between specular and diffuse reflections, the absorptive properties of different building materials, and the nature of reverberation. Smaller performance spaces are subject to standing waves, flutter echo, and comb filtering. Taking steps to avoid undesirable characteristics is often an easy matter once the nature of these characteristics is understood. The final weeks cover audio technology and the distinctions between analog and digital formats. The course ends with a unit on auditory display and sonification, wherein scientific data may be presented through musical sound.

Changes Effective Fall 2023:

- Change Abbreviated Title
- Remove Prerequisites

INART 205: Introducing the Beatles (3 Credits) (GA)

Old Listing Effective Through Summer 2023:

The influence and achievement of the Beatles as artists focusing on their recordings and films as sociocultural artifacts. INART 205 Introducing the Beatles (3) (GA) INART 205 is composed of eight units of study that trace the lives and work of the Beatles. The course's chronological design is arranged in order to capture the band's artistic trajectory from two-track recording and the relatively primitive Please Please Me album through the sonic heights of Revolver, Sgt. Pepper's Lonely Hearts Club Band, The White Album, and Abbey Road. This course examines the group's wide-ranging sociocultural influence in terms of music, fashion, film, gender, consumerism, and politics. The thrust of the course is interpretive in nature, with the Beatles' songs and albums receiving considerable scrutiny in terms of their composition, production, and attendant musicianship. Developments in recordings and instrument technology are germane to our understanding of the Beatles' evolving

aesthetic, as is the bandmates' development as songwriters who eventually eschew issues associated with romance in order to address larger and more prescient subjects such as loneliness, oppression, nostalgia, ethics, and redemption in their music. Each unit of study will be accompanied by the analysis of key examples from the Beatles' massive recorded corpus. More than 100 songs will receive consideration, as will the group's five forays as feature-film stars. Grades in INART 205 will be determined by two objective examinations- a midterm and a final. Class participation will be a key ingredient in student performance, as will students' work on two papers. The first of such assignments will involve a shorter paper in which students address a particular aspect of the band's sociocultural emergence during their early years. The longer term paper will be researched, argumentative essay in which students will be assigned to discuss any aspect of the Beatles' career – a particular album (or series of albums), their musical influence, or their cultural impact, among other topics – and construct a mature, expansive thesis about its meaning.

Changes Effective Fall 2023:

- General Education Recertification

**INART 258A: Fundamentals of Digital Audio (3 Credits) (BA) (GA)
Old Listing Effective Through Summer 2023:**

A thorough introduction to digital music production technologies, covering fundamentals of how digital musical information is stored, processed and transmitted. INART 258A Fundamentals of Digital Audio (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. A thorough introduction to digital music production technologies, covering the fundamentals of how musical information is stored and transmitted in digital devices. This course is meant for people who are passionate about working with sound, and who are willing to take on new technical and creative challenges in audio production. It is the pre-requisite for many more advanced courses in music technology and audio production. Students complete a series of low-stakes audio exercises on fundamental operations, a series of written responses to questions on the underlying theory of digital audio, and a small number of extended creative projects. The software used is at the level of professional audio production workstations. Students complete the course with a set of vocational skills in computer music and audio.

Changes Effective Fall 2023:

- Remove Prerequisites

**INART 258B: Fundamentals of Digital Audio (1 Credit) (BA) (GA)
Old Listing Effective Through Summer 2023:**

A general overview of music technologies current to music educators and performers, as defined by their accrediting organization. This course is meant for students who do not intend to pursue further studies in music technology. Students will be exposed to software that is meant for non-specialists, and learn basics of music recording and editing. Students complete a set of lessons, each of which features a hands-on exercise. They gain a set of technical tools that should be of immediate relevance to their careers, including basics of music recording, audio editing, Internet resources, music arranging and score preparation.

Changes Effective Fall 2023:

- Remove Prerequisites
- Add Prerequisites
- Add United States and Intercultural Attribute: IL

JAPNS 121H: Japanese Film and New Media (3 Credits) (H) (IL) (BA) (GH)

Old Listing Effective Through Summer 2023:

Survey of Japanese film and new media in the twentieth century and beyond, with attention to changing cultural settings. Taught in English. JAPNS 121 Japanese Film and New Media (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. This course is intended to provide an introduction to modern and cutting-edge forms of cultural production in Japan from the twentieth century to the present day. Prior study of Japan is not required and materials will be available in English. Students will learn about major technologies and forms of media, including film, manga, anime,, and various forms of new media (cell-phone novels, blogs, MMOGs, IM, and Web 2.0 for instance). Readings and screenings will cover several artistic modes including formalism, historiography, documentary, period drama, and experimental works. The course, or individual units within the course, will be structured so that students develop an historical perspective, allowing them to understand the cultural contexts that have inspired the creative works under study. By examining Japanese film and new media with attention to changing cultural settings, students will investigate such topics as the relation between social institutions and the individual, the formation and expression of identity, changing gender roles and family structures, the impact of technological and economic trends on social structure, and changing climates of censorship and freedom of expression. In addition, students will learn to think critically about various media's techniques and aesthetics of representation, and will become more engaged, critical spectators of film and related media. Class work includes some lecture but emphasizes guided discussions, group work, writing exercises, and some student presentations. This participatory approach is intended to deepen students' appreciation of the works, to help them understand value systems that may differ from those predominant in western cultures, and to assist students in developing both analytical and expressive abilities. Through critical reading, group discussion and interpretive writing, students will hone skills for evaluating modes of cultural production and consumption in modern Japan. The course is designed to be suitable for all students generally interested in Japan, or interested in various fields of humanistic study, whether or not they have previously studied the culture of Japan. This course is required of the Japanese major. It is designed to count as General Education, as a B.A. "Other Cultures" course, and as an IL 'International Cultures' course.

Changes Effective Fall 2023:

- Change Course Number
- Change Description
- Add GA

KINES 303: Emergency Care – First Aid/Safety/AED (3 Credits) (GHW)

Old Listing Effective Through Summer 2023:

Develop skills for First Responder Certification in CPR/AED, First Aid and Safety by American Red Cross or National Safety Council. KINES 303 Emergency Care – First Aid/Safety/AED (3) (GHA) KINES 303 is designed to provide students with the opportunity to acquire and develop the skills and competencies needed for First Responder Certification in CPR/AED, First Aid and Safety from the American Red Cross and/or National Safety Council. Students will understand the role of the Emergency

Medical System (EMS) in a complex society and the importance of emergency care in our health care system. KINES 303 will foster the student's critical thinking skills and their ability to assess and evaluate life threatening and disabling injuries and illnesses and to respond with appropriate care and life saving action steps in variety of medical emergencies. Students will develop an understanding of the importance of emergency care, first aid and safety at all levels of society with emphasis on providing and improving the quality of emergency care practices in a wide variety of community organizations, occupations and professions including childcare, education, human services, geriatric care and disaster management. KINES 303 is taught through a variety of teaching methods. Students are prepared for proficiency through readings, classroom discussion, video presentation, practical skills, sudden illness and injury scenarios, group presentations and direct observation of EMS (Ride-Alongs). The course is practice-focused on developing the skills and competencies necessary for emergency scene management, CPR/AED and sudden illness and injury. Various evaluation techniques will be used to assess the students progress in KINES 303. These techniques shall include but not be limited to conventional objective testing, practical skill tests, sudden illness and injury scenarios, group presentation and written observation papers. Students who have already received credit for NURS 203 and/or KINES 233 may not enroll in this course due to duplication of material.

Changes Effective Fall 2023:

- Change Title
- Change Abbreviated Title
- Change Description

KINES 495B: Field and/or Research Practicum in Kinesiology (6 Credits)

Old Listing Effective Through Summer 2023:

This is a required course for students in the Movement Science and Applied Exercise Health (AEH) Options within the Kinesiology curriculum. This course requires students to complete gainful leadership and experiential learning in workplaces or research settings with the expectation that these experiences will allow them the opportunity to apply and integrate content from all their courses with success and insight. Students complete practicum requirements at a variety of settings, including but not limited to research laboratories, professional fitness centers, rehabilitation facilities, senior centers, community health and wellness programs, hospitals and collegiate and professional sports venues. They learn the day-to-day requirements of being "on the job" or "in the lab," including professional management practices and ethical considerations. Practicums are evaluated on an ongoing basis with the student intern, on-site internship supervisor, and/or faculty member involved in the process. Internships can be completed either on or off-campus

Changes Effective Fall 2023:

- Change Credit

MATH 21: College Algebra I (3 Credits) (BA)

Old Listing Effective Through Summer 2023:

Quadratic equations; equations in quadratic form; word problems; graphing; algebraic fractions; negative and rational exponents; radicals.

Changes Effective Fall 2023:

- Recertification
- Change Description

MATH 22: College Algebra II and Analytic Geometry (3 Credits) (BA) (GQ)

Old Listing Effective Through Summer 2023:

Relations, functions, graphs; polynomial, rational functions, graphs; word problems; nonlinear inequalities; inverse functions; exponential, logarithmic functions; conic sections; simultaneous equations.

Changes Effective Fall 2023:

- Recertification
- Change Title
- Change Description

MATH 26: Plane Trigonometry (3 Credits) (BA) (GQ)

Old Listing Effective Through Summer 2023:

Trigonometric functions; solutions of triangles; trigonometric equations; identities.

Changes Effective Fall 2023:

- Recertification
- Change Title
- Change Description

MATSE 417: Electrical and Magnetic Properties (3 Credits)

Old Listing Effective Through Summer 2023:

Electrical conductivity, dielectric properties, piezoelectric and ferroelectric phenomena; magnetic properties of ceramics. ESC 417/MATSE 417 Electrical and Magnetic Properties (3) is designed to provide students with a fundamental understanding of the different responses a material can have to applied electrical or magnetic fields. Important properties are introduced and correlated with knowledge of material chemistry, crystal structure, and microstructure to provide an understanding of the mechanisms responsible for controlling the observed properties, as well as the ways in which properties can be engineered. Electronic and magnetic properties encompass dielectric, ferroelectric, conductor, superconductor, and ferromagnetic materials. Material properties and structures are related to sensors, energy storage and conversion devices, biomedical devices and electronic components in telecommunications.

Changes Effective Fall 2023:

- Change Description
- Change Prerequisites
- Remove Concurrent

MUSIC 51: Intermediate Class Piano: Non-Music Major (1 Credit) (GA) (BA)

Old Listing Effective Through Summer 2023:

Music 51 is course designed to provide the intermediate non-music major student with strategies for developing some of the advanced skills required for playing the piano. Some knowledge of music or piano is assumed and Music 50 or a placement audition is a prerequisite for this course. The course emphasizes strategies for learning to read and interpret musical notation from two clefs and musically realize the notation in real time with a healthy physical approach to the keyboard. Practice of these strategies outside the class is expected and checked.

Objectives include learning to accurately sight-play a multiple voice musical texture with many extensions and shifts beyond a five-finger position. Special facilities required to teach the course include a 17-keyboard midi piano lab with visual displays for teacher demonstrations. The course is offered every Fall and Spring semester.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 53: Class Voice Practicum (1 Credit) (BA) (GA)

Old Listing Effective Through Summer 2023:

Voice study in group and individual formats, consisting of in-class lessons and discussions, enhanced by individual applied instruction from advanced voice pedagogy students. MUSIC 53 Class Voice Practicum (1)(GA)(BA) This course meets the Bachelor of Arts degree requirements. MUSIC 53 is a voice class experience that affords the enrolled student instruction in a class setting and in individual lessons. The weekly class meetings feature demonstration lessons between the enrolled student and his or her teacher (an advanced voice pedagogy student from the voice pedagogy curriculum). These lessons give the course instructor the opportunity to monitor the progress of the enrolled students, supervise and evaluate the teaching of the advanced voice pedagogy students, and make suggestions for further growth. Enrolled students and advanced voice pedagogy students also have the opportunity to learn by observing the demonstration lessons of others in the class. Lesson evaluation forms are completed and turned in at the end of each meeting. Class concerts typically occur at mid-term and at the end of the semester. These performances give the enrolled students the opportunity to display their vocal and musical progress. Individual lessons that enrolled students may receive out-of-class with the advanced voice pedagogy students give them an occasion for concentrated work in a more relaxed atmosphere. It may be of interest that this is the only course offering individual voice instruction in the School of Music that does not carry an additional applied music fee. In addition to the vocal and musical advancement for students enrolled in MUSIC 53, this course also serves as a progressive training ground in teaching for advanced voice pedagogy students. They gain important teaching experience in a closely supervised forum.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 77: Philharmonic Orchestra (1-1 Credits: Maximum of 8 Credits) (BA) (GA)

Old Listing Effective Through Summer 2023:

Orchestra rehearsal and performance. MUSIC 77 Philharmonic Orchestra (1 per semester/maximum of 8)(GA)(BA) This course meets the Bachelor of Arts degree requirements. The Philharmonic Orchestra is an auditioned instrumental ensemble that rehearses two times per week to develop student instrumental and musicianship skills as well as to develop individual and ensemble musicality and expression. Repertoire includes the standard literature from the 19th and 20th centuries as well as new music written for symphony orchestra. The ensemble presents at least two on-campus performances per semester, and off-campus performances are scheduled each year. The goals of this course are to develop the instrumental performing skills, music reading abilities, and interpretive capabilities of the class members within a large symphonic orchestra context. 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.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 81: Marching Blue Band (1-1 Credits: Maximum of 4 Credits) (BA) (GA)

Old Listing Effective Through Summer 2023:

Rehearsal and performance of appropriate music and maneuvers for football games and related events. MUSIC 81 Marching Blue Band (1 per semester/maximum of 4)(GA)(BA) This course meets the Bachelor of Arts degree requirements. This course develops the instrumental performance skills and marching skills of class members within the marching band setting. Objectives are to combine high level musical and visual performance with uniform marching style to create interesting and entertaining maneuvers suitable for parades, football games, and other athletic/outdoor venues. This course is open to students in all majors. Evaluation is based upon participation, achievement of individual music and marching performance requirements, and contribution to group performance goals. An audition is required for participation.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 91: Oriana Singers (1-1 Credits: Maximum of 8 Credits) (BA) (GA)

Old Listing Effective Through Summer 2023:

Rehearsal and performance of choral repertoire for treble voices from the sixteenth to twentieth centuries, including sacred and secular compositions. MUSIC 091 Oriana Singers (1.0 per semester/maximum of 8)(GA)(BA) This course meets the Bachelor of Arts degree requirements. Oriana Singers was founded in 1994 to serve the musical needs of highly talented undergraduate and graduate women. The 65-voice ensemble performs repertoire representing every musical period, genre and style in its two campus concerts per semester. The choir has been invited to perform at prestigious regional and national music conferences and has participated in tours within the state of Pennsylvania. Membership is determined by audition. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 93: Essence of Joy (1-1 Credits: Maximum of 8 Credits) (US) (IL) (BA) (GA)

Old Listing Effective Through Summer 2023:

Rehearsal and performance of choral repertoire from the African/American tradition. MUSIC 093 Essence of Joy (3)(GA;US;IL)(BA) This course meets the Bachelor of Arts degree requirements. Essence of Joy is a highly selective mixed choral ensemble that specializes in

repertoire written by African-Americans. The repertoire of the 45-voiced ensemble includes all art, folk, and sacred genres within this large field of study. Essence of Joy has performed at numerous prestigious national and regional meetings of music educators and choral conductors. In addition, the choir tours extensively and has presented performances throughout Pennsylvania, the eastern region, the southern region, and eastern Europe. Membership is open to undergraduate and graduate students. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances of African-American choral music. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessments (both written and aural) and attendance at rehearsals and performances.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 94: Women's Chorale (1-1 Credits: Maximum of 8 Credits) (BA) (GA)

Old Listing Effective Through Summer 2023:

Rehearsal and performance of treble choral literature. MUSIC 094 Women's Chorale (1.0 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Women's Chorale is the largest treble ensemble on the University Park campus. Membership is determined by audition and is open to both undergraduate and graduate students. The choir participates in two campus performances per semester. The goal of the ensemble is to provide artistic, meaningful, and successful choral performances. To achieve this goal, the learning objectives for individual students include attention toward individual vocal development, increased musicianship skill, and the discovery of new means of artistic expression. In addition to these individual objectives, the conductor of the ensemble also teaches directly toward the objectives of ensemble tone, blend, balance, intonation, dynamics, diction, phrasing, etc. Grades are determined by a combination of vocal and musicianship assessment (both written and aural) and attendance at rehearsals and performances.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 100: Campus Orchestra (1-1 Credits: Maximum of 10 Credits) (BA) (GA)

Old Listing Effective Through Summer 2023:

Rehearsal and performance orchestral literature. MUSIC 100 Campus Orchestra (1-10) (GA) (BA) This course meets the Bachelor of Arts degree requirements. The goals of this course are to develop the instrumental performing skills, music reading abilities, and interpretive capabilities of the class members within a large symphonic orchestra context. The repertoire includes the standard literature from the 18th through 21st 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 performance skills on standard orchestral string, wind, and percussion instruments. An audition is required.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 114: Music Theatre—Class Voice II (1 Credit) (BA)

Old Listing Effective Through Summer 2023:

Group study emphasizing development of sound vocal and musicianship skills fundamental for music theatre.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 121: Basic Musicianship I (1 Credit) (BA)

Old Listing Effective Through Summer 2023:

Elementary sight singing and dictation.

Concurrent: MUSIC 131 or Recommended Preparation: This course requires the ability to reproduce simple rhythm and tonal patterns

Changes Effective Fall 2023:

- Remove Concurrent

MUSIC 127: Introduction to Music Technology (1 Credit)

Old Listing Effective Through Summer 2023:

Course Content and Expectations: Introduction to Music Technology is a course designed for freshman or first-year students in the BA Music Technology, BFA Sound Design, or BM Music Composition degree programs at Penn State. This course will provide an introduction and overview to the use of technology in creative music making, live sound, and recording engineering. At the completion of this course, students will have a working fundamental knowledge of audio recording hardware and software, concepts in live sound reinforcement, MIDI sequencing, and an understanding of the various ways technology is used in creative music making. These skills will provide students with a foundation for success in future music technology courses. Course Goals and Objectives: Students will complete 13 weekly assignments and one final project. Weekly assignments are sequential and design to gradual build upon the students' knowledge and experience in the field of music technology. These include live sound, recording, mixing, editing, and MIDI sequencing. The final project will demonstrate the students' ability to combine these skills to create a short original composition/recording.

Changes Effective Fall 2023:

- Remove Recommended Preparation

MUSIC 131: Music Theory I (2 Credits) (BA)

Old Listing Effective Through Summer 2023:

Review of rudiments; introduction to the fundamental linear and vertical features of tonal music, integration of written and aural skills.

Changes Effective Fall 2023:

- Remove Concurrent and Recommended Preparation

MUSIC 162: Introduction to Music History (2 Credits)

Old Listing Effective Through Summer 2023:

An introduction to the discipline of music history through the study of representative works. MUSIC 162 Introduction to Music History (2) This course introduces students to the discipline of music history, through

study of the core repertoire from the common-practice era: the music of the High Baroque (especially Bach and Handel) through the end of the Classical period and the beginnings of Romanticism (Beethoven). The course objectives focus on acquisition of skills necessary for thinking historically about music. Students learn 1) to describe the main stylistic features of a work (melodic, harmonic, rhythmic, textural, timbral, formal); 2) to associate these features with particular composers and eras; 3) to compare and contrast works from the same period and from different periods; and 4) to relate stylistic features to historical context, social function, performance conditions, and listeners' experience. The course thus emphasizes agents—the people who created, performed, listened to, and paid for the music—in order to illuminate both the musical works and the historical and social factors that shaped those works' distinctive features.

Changes Effective Fall 2023:

- Remove Concurrent
- Add Concurrent or Prerequisites

MUSIC 170: Keyboard Skills II: Music Major (1 Credit) (BA)

Old Listing Effective Through Summer 2023:

Instruction in secondary chord progressions, transposition, improvisation, accompanying techniques, simple score reading.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 181: Jazz Improvisation I (2 Credits) (BA)

Old Listing Effective Through Summer 2023:

A study of the fundamentals of jazz theory, harmonic functions, and their applications to jazz improvisation.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 190: Chamber Music for Strings (1-1 Credits: Maximum of 8 Credits) (BA) (GA)

Old Listing Effective Through Summer 2023:

Preparation for performance of chamber music literature involving string instruments. MUSIC 190 Chamber Music for Strings (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Chamber Music for Strings meets at least two hours per week – once with the instructor for coaching and at least once for an additional rehearsal without the instructor's presence. Course objectives include, but are not limited to, the development of rehearsal and ensemble skills, an increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to operate as a unit. Chamber music is an integral part of instrumental musical training. It is an important partner with conducted ensembles in the performance preparation of musicians. Evaluation of student work is based on participation in rehearsals, the progress made by the ensemble, and the quality of the ensemble's performances. The course is offered during fall and spring semesters.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 191: Chamber Music for Woodwinds (1-1 Credits: Maximum of 8 Credits) (BA) (GA)

Old Listing Effective Through Summer 2023:

Preparation for performance of chamber music literature involving woodwind instruments. MUSIC 191 Chamber Music for Woodwinds (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Chamber Music for Woodwinds meets at least two hours per week – once with the instructor for coaching and at least once for an additional rehearsal without the instructor's presence. Course objectives include, but are not limited to, the development of rehearsal and ensemble skills, an increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to operate as a unit. Chamber music is an integral part of instrumental musical training. It is an important partner with conducted ensembles in the performance preparation of musicians. Evaluation of student work is based on participation in rehearsals, the progress made by the ensemble, and the quality of the ensemble's performances. The course is offered during fall and spring semesters.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 192: Chamber Music for Brass (1-1 Credits: Maximum of 8 Credits) (BA) (GA)

Old Listing Effective Through Summer 2023:

Preparation for performance of chamber music literature involving primarily brass instruments. MUSIC 192 Chamber Music for Brass (1 per semester/maximum of 8) (GA)(BA) This course meets the Bachelor of Arts degree requirements. Chamber Music for Brass meets at least two hours per week – once with the instructor for coaching and at least once for an additional rehearsal without the instructor's presence. Course objectives include, but are not limited to, the development of rehearsal and ensemble skills, an increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to operate as a unit. Chamber music is an integral part of instrumental musical training. It is an important partner with conducted ensembles in the performance preparation of musicians. Evaluation of student work is based on participation in rehearsals, the progress made by the ensemble, and the quality of the ensemble's performances. The course is offered during fall and spring semesters.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 193: Sonata Duos (1-1 Credits: Maximum of 8 Credits) (BA)

Old Listing Effective Through Summer 2023:

Preparation for performance of advanced sonata literature for various individual instruments with keyboard.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 210: Keyboard Skills III: Music Major (1 Credit) (BA)

Old Listing Effective Through Summer 2023:

Playing accompaniments from chord symbols and full notation, transposition, improvisation, modulation, score-reading, and standard literature.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 215: The Craft of Singing (3 Credits) (BA) (GA)

Old Listing Effective Through Summer 2023:

Vocal/respiratory anatomy and function, vocal health, voice classification, and techniques that enhance and develop acting and movement from the singer perspective. Anatomy of the larynx and respiratory system are studied and strengthened through in-class work on vocal and breathing exercises. Focus is placed on good tone production and resonance. 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. This course is designed for students in the INART major, and also for students who are interested in singing but are not MUSIC or THEATRE majors.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 221: Basic Musicianship III (1 Credit) (BA)

Old Listing Effective Through Summer 2023:

Intermediate sight singing and dictation.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 222: Basic Musicianship IV (1 Credit) (BA)

Old Listing Effective Through Summer 2023:

Continuation of Music 221.

Changes Effective Fall 2023:

- Remove Prerequisites or Concurrent Notation

MUSIC 241: Music for Classroom Teachers (3 Credits) (BA)

Old Listing Effective Through Summer 2023:

Development of competencies for guiding musical experiences of children in the elementary classroom.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 267: Techniques of Composition (2 Credits) (BA)

Old Listing Effective Through Summer 2023:

Basic instruction in the techniques of composition in all idioms.

Changes Effective Fall 2023:

- Change Prerequisites
- Remove Concurrent

MUSIC 270: Keyboard Skills IV: Music Major (1 Credit) (BA)

Old Listing Effective Through Summer 2023:

Instruction in secondary chord progressions, transposition, improvisation, accompanying techniques, score reading.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 295A: Early Field Experience in Music Education (1-1 Credits: Maximum of 1 Credit) (BA)

Old Listing Effective Through Summer 2023:

MUSIC 295A Early Field Experience in Music Education (1)(BA) This course meets the Bachelor of Arts degree requirements. This course is offered to music majors during their fourth semester who are intending to apply to the Teacher Education Degree Program in Music. It provides prospective music teachers with an opportunity to observe various components involved in the music teaching process; develop basic music teaching skills; identify behaviors of effective music teachers; identify their own strengths and weaknesses as a teacher, set goals based on those traits, and apply strategies to improve; develop their ability to reflect on their own teaching; observe and interact with children of varying races, religious beliefs, national origins and socioeconomic backgrounds, particularly children for whom English is a second language and who are considered in need of early intervention; continue developing their own sight-singing and piano skills.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 332: Analysis of Twentieth Century Music (2 Credits) (BA)

Old Listing Effective Through Summer 2023:

Application of analytical techniques and compositional theories to music of the twentieth century.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 336: Orchestration (2 Credits) (BA)

Old Listing Effective Through Summer 2023:

Scoring for the orchestra.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 341: Instructional Materials in Music (2 Credits)

Old Listing Effective Through Summer 2023:

Exploration of instructional materials and repertoire for use in K-12 music settings. Limited to Music Education majors who have been accepted into the Teacher Education Degree Program in Music. MUSIC 341 Instructional Materials in Music (2) MUSIC 341 is offered to students who have been accepted into the Teacher Education Degree Program in Music. The focus of this course is to gain knowledge through exploration of the process for selecting instructional materials and repertoire for K-12 music across all settings, choral, general, and instrumental settings. Topics include: the exploration of instructional materials, the criteria for selection of materials, and strategies for arranging musical materials to meet the needs of students. The instructional format includes: lecture, large and small group discussion, readings, and musical examples. Students complete several practical assignments and present

summations of small group discussions. A written midterm and final evaluation will be given to assess student learning.

Changes Effective Fall 2023:

- Add Prerequisites
- Remove Concurrent

MUSIC 341B: Instructional Practices in General Music (1.5 Credits)
Old Listing Effective Through Summer 2023:

This course provides students with the opportunity to explore instructional materials and repertoire through in-class sessions and observation of Pre- K-12 teachers. Topics include: singing voices of children/youth, music literacy, classroom instruments, musical movement, and issues of curriculum, planning, and assessment. The instructional format includes: large and small group discussion, readings, and musical and teaching examples and experiences. Students complete several practical assignments including off campus observations and development of materials for use in teaching.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 345: Instructional Practices in Music (2 Credits)
Old Listing Effective Through Summer 2023:

For music education students to learn about instructional techniques and practices for music performance and general music classes. MUSIC 345 Instructional Practices in Music (2) This course is designed to cover general principles in planning and delivery of instruction for, and assessment of the learning of, students in public school K-12 music rehearsals and classrooms. Further, this course will focus on application and implementation of strategies to specific settings in which students will be certified to teach. Course objectives enable students to develop an understanding of the interaction of planning and delivery of instruction and the assessment of student learning; develop an understanding of principles of presenting and leading students in music activities and performance experiences; develop strategies for planning music lessons and rehearsals; and develop strategies for assessing student learning. Students in the course will select appropriate instructional strategies reflecting technical and musical objectives and needs of the students; plan music lessons and rehearsals reflecting technical and musical objectives and needs of the students; and develop valid tools and procedures for assessing students' music learning. The students in this course will be evaluated on their effectiveness in writing task analyses, lesson and rehearsal plans, designing assessment tools, and implementing plans and assessments in a variety of music settings in peer-teaching situations. Music education majors will take this course as part of a sequence of music education courses. This course is preceded by courses concerning musical development, teaching experiences, and courses in selection and design of instructional materials, and this course precedes a capstone course (MUSIC 441W, MUSIC 442W, MUSIC 443W, MUSIC 444W, MUSIC 445W, or MUSIC 446W) in which students study one instructional setting and curriculum level (choral, band, orchestra, general music; elementary middle school, high school) in greater depth, depending on their future career goals. Approximately 25 students will be enrolled.

Changes Effective Fall 2023:

- Correct Spelling
- Change Prerequisites

MUSIC 366: Intermediate Conducting (1 Credit) (BA)
Old Listing Effective Through Summer 2023:

Intermediate instruction in conducting; conducting techniques specific to instrumental or choral music; introduction to rehearsal technique. MUSIC 366 Intermediate Conducting (1)(BA) This course meets the Bachelor of Arts degree requirements. MUSIC 366 focuses on the development of more advanced physical skills and gestures appropriate for conducting expressive performances and rehearsals of music ensembles. The instructional format includes instructor demonstrations, student conducting of the class ensemble, and active participation as a performer and observer for peer conductors. Outside of class, students are expected to practice conducting gestures and use basic score study skills as preparation for conducting assigned music. Students prepare several music scores and conduct the class ensemble in practice episodes and instructor-evaluated performances. Students receive feedback and peer feedback on their performances in both practice and evaluated conducting episodes. Students are graded through instructor evaluation of conducting performances, completion of self-assessments involving review of a video of their performances, and participation in providing feedback for peers.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 387: Language Diction for Singers: Italian and English (1 Credit) (BA)
Old Listing Effective Through Summer 2023:

Intensive drill in the pronunciation, phonetic transcription, and singing of Italian and English.

Changes Effective Fall 2023:

- Correct Abbreviated Title
- Remove Prerequisites

MUSIC 388: Language Diction for Singers: French (1 Credit) (BA)
Old Listing Effective Through Summer 2023:

Intensive drill in the pronunciation, phonetic transcription, and singing of French.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 389: Language Diction for Singers: German (1 Credit) (BA)
Old Listing Effective Through Summer 2023:

Intensive drill in the pronunciation, phonetic transcription, and singing of German.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 395A: Cohort Practicum I (1-1 Credits: Maximum of 1 Credit) (BA)
Old Listing Effective Through Summer 2023:

MUSIC 395A Cohort Practicum I (1)(BA) This course meets the Bachelor of Arts degree requirements. MUSIC 395A is offered for students who are tracking acceptance into the Teacher Education Degree Program in Music. Students will enroll concurrently with the proposed course MUSIC 341 and the revised course MUSIC 340. The focus of the course is to provide students with opportunity to explore instructional materials and repertoire through interviews and observation of K-12 teachers. Topics include: the design and implementation of observational tools, and the leading and teaching of songs in a variety of settings. The instructional format includes: large and small group discussion, readings, and musical and teaching examples and experiences. Students complete several practical assignments including off campus observations, and present summations of small group discussions.

Changes Effective Fall 2023:

- Change Prerequisites
- Change Concurrent

MUSIC 395C: Practicum in Music Teaching (1-5 Credits: Maximum of 5 Credits) (BA)

Old Listing Effective Through Summer 2023:

Field experiences in music teaching for undergraduate music education majors.

Changes Effective Fall 2023:

- Remove Prerequisite
- Remove Concurrent

MUSIC 412: Jazz Pedagogy (2 Credits) (BA)

Old Listing Effective Through Summer 2023:

The development of advanced skills in pedagogy for teaching jazz bands.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 414: String Pedagogy (1-2 Credits: Maximum of 2 Credits) (BA)

Old Listing Effective Through Summer 2023:

The development of skills in pedagogy for teaching strings.

Changes Effective Fall 2023:

- Remove Prerequisites
- Add Prerequisites or Concurrent

MUSIC 415: Woodwind Pedagogy (1-2 Credits: Maximum of 2 Credits) (BA)

Old Listing Effective Through Summer 2023:

The development of skills in pedagogy for teaching woodwinds.

Changes Effective Fall 2023:

- Remove Prerequisites
- Add Prerequisites or Concurrent

MUSIC 416: Brass Pedagogy (1-2 Credits: Maximum of 2 Credits) (BA)

Old Listing Effective Through Summer 2023:

The development of skills in pedagogy for teaching brass.

Changes Effective Fall 2023:

- Remove Prerequisites
- Add Prerequisites or Concurrent

MUSIC 418: Voice Pedagogy (2 Credits) (BA)

Old Listing Effective Through Summer 2023:

Analysis of techniques of teaching voice and studies of related music literature and pedagogical writings.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 419: Piano Pedagogy I (2 Credits) (BA)

Old Listing Effective Through Summer 2023:

Analysis of beginning teaching methods and teaching strategies for children.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 420: Song Writing and Recording (3 Credits)

Old Listing Effective Through Summer 2023:

Song composition, arranging and recording in a variety of style genres. MUSIC 420 Song Writing and Recording (3) This course will take the student through the process of composing and producing a recorded song. The class will consist of a combination of class meetings and individual instruction. Topics will include form, lyric writing, arranging, audio/MIDI recording and sequencing. Familiarity with basic audio sequencing software and music theory concepts is essential. The focus of the class is vernacular song as opposed to classical art song, but all the basic concepts discussed in the class apply to either genre. The course requires the composition of original songs and the creation of high-quality recordings of them and their conversion to MP3 format. The student are expected to enter the class with a basic knowledge of digital audio and MIDI (MUSIC/INART 258 or equivalent).

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 421: Jazz Combo Class (1-1 Credits: Maximum of 8 Credits) (BA)

Old Listing Effective Through Summer 2023:

Study and performance of small group jazz.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 422: Jazz Harmony and Arranging (3 Credits) (BA)

Old Listing Effective Through Summer 2023:

Analysis and composition of jazz tunes and chord progressions; instrumental and vocal arranging in the jazz idiom.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 424: Piano Pedagogy II (2 Credits) (BA)**Old Listing Effective Through Summer 2023:**

Analysis of techniques of teaching intermediate-early advanced level piano and studies of music literature and pedagogical writings.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 431: Advanced Tonal Analysis (2-3 Credits) (BA)**Old Listing Effective Through Summer 2023:**

Advanced techniques of musical analysis.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 432: Graduate Review of Twentieth-Century Analysis (2-3 Credits: Maximum of 3 Credits) (BA)**Old Listing Effective Through Summer 2023:**

The theory and analysis of style in music of the twentieth century.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 435: Score Reading (1 Credit) (BA)**Old Listing Effective Through Summer 2023:**

Introduction in score reading at the keyboard.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 438: The Business of Music (1-1 Credit: Maximum of 1 Credit)**Old Listing Effective Through Summer 2023:**

A survey of topics related to a music career in performance, private teaching, and college teaching. This course is a survey of topics related to a career in classical music performance, private teaching, and educational institution teaching. These are the principal means by which the freelance musician earns a living. Topics include résumé writing, biography writing, repertoire list writing, press release writing, website and flyer design, audio and video recordings, auditions, competitions, performance opportunities, networking, professional finances, fundraising, managing all aspects of a private teaching enterprise, and applying for institutional teaching positions. Panel discussions with professional musicians will be scheduled.

Changes Effective Fall 2023:

- Change Description
- Change Prerequisites

MUSIC 441W: Emphasis in Elementary General Music (3 Credits) (WF)**Old Listing Effective Through Summer 2023:**

This course is intended for Music Education majors in their senior year who have particular interest in working with elementary school children in a general music or choral setting and will involve off-site practicum experiences. Students in this course will develop teaching

skills as applied to the elementary general music classroom including the teaching of singing, movement, classroom instruments, creative endeavors, and rhythmic and melodic literacy.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 443W: Choral Emphasis in Secondary Music Education (3 Credits) (WF)**Old Listing Effective Through Summer 2023:**

MUSIC 443W Choral Emphasis in Secondary Music Education (3). This course meets the Bachelor of Music (Music Education) degree requirements. The course is intended to prepare pre-service teachers to teach secondary choral (vocal) 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 choir 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 vocal technique 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). Students will complete a field experience component in local middle or high schools.

Changes Effective Fall 2023:

- Add Prerequisites

MUSIC 444W: Emphasis in Elementary and Intermediate Band (3 Credits) (WF)**Old Listing Effective Through Summer 2023:**

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.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 445W: Emphasis in High School Band (3 Credits) (WF)
Old Listing Effective Through Summer 2023:

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.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 450: Teaching Marching Band (2 Credits) (BA)
Old Listing Effective Through Summer 2023:

Traditional and contemporary drill design principles, show development strategies, instructional techniques, and organizational procedures involved in teaching marching band. MUSIC 450 Teaching Marching Band (2)(BA) This course meets the Bachelor of Arts degree requirements. MUSIC 450 is a marching band technique course for music education majors, band directors, and experienced marching band members. This course develops knowledge and skills required to organize and teach marching band with an emphasis on traditional and contemporary drill design and charting. Students are taught an eclectic understanding of drill systems, contemporary drill design, and visual design theory with opportunities to apply drill design computer software (Pyware Java 3D) in developing effective movements for marching units. Course topics include philosophy and role of marching band in the music program, historical perspectives, marching band styles, administration and organization of the marching band and auxiliary units and teaching techniques.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 451: Computer Programming for Musicians (3-3 Credits: Maximum of 12 Credits)
Old Listing Effective Through Summer 2023:

In-depth study of music programming techniques. MUSIC 451 Computer Programming for Musicians (3 per semester/maximum of 12) This is an in-depth study of a given music programming language or environment. The language/environment will vary from semester to semester, to include languages such as SuperCollider and Max/MSP. Students will be expected to work independently on a series of projects that require increasing levels of difficulty in programming methodology. The course may be repeated for credit. Students will be acquainted with the basics of how the programming environment treats fundamental matters such as signal flow, defining functions, variables and arguments, and music synthesis techniques. These principles will be expanded, with added layers of complexity to the types of problems presented. More complex instruments, processing, and filtering will be covered, along with real-time capabilities (ability of the program to respond to input from audio input or data from an external controller) and the creation of graphical user interfaces (GUIs). Advanced topics will include algorithmic composition and the creation of plug-ins that may be used by other programs. As this is an upper division class, students will be expected to be self-motivated and work independently. Assignments will present problems that may be approached in a number of ways – there is no single right answer; putting it another way, the correct answer is the one that works. Students pursuing the minor in Music Technology (MUTEC) are required to complete two elective courses, one of them upper division. This course will serve those students wishing to apply the minor to areas of software development. Along with MUSIC 455 Technology in Music, this course may also serve as the second part of an elective music technology cognate for students in the graduate and IUG programs in music theory.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 452: Computer Music Synthesis (3 Credits) (BA)
Old Listing Effective Through Summer 2023:

Use of sound synthesis software for music creation.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 455: Technology in Music (1-3 Credits: Maximum of 3 Credits) (BA)
Old Listing Effective Through Summer 2023:

Survey of how musical information is stored and processed in computer systems. MUSIC 455 Technology in Music (3)(BA) This course meets the Bachelor of Arts degree requirements. This course provides a survey of how musical information is stored and transmitted in digital devices. It will be divided into three sections. Weeks 1 and 2 are an introduction to acoustical principles such as the nature of sound transmission and measurements of frequency, sound power level, phase, timbre, and localization. Computer basics will also be covered, with topics to include binary number representation and basic computer operation. Weeks 3 through 8 cover the MIDI transmission protocol that enables musical information to be stored and transmitted efficiently. Topics include the nature of the MIDI data structure, the types of messages that may be passed, and the suitability of MIDI for expressive performance. MIDI software is discussed, including notation software, editor/librarian software, and sequencers. The bulk of the course's project component involves working with sequencing programs. Students are also exposed to using MIDI on the web, downloading files and importing them into various applications. Weeks 9 through 15 cover digital audio so that students may understand how instruments capable of understanding

MIDI messages are able to translate the instructions into audio signals. Topics include sampling theory, digital vs. analog recording, filters, signal processing, and editing sound files. Projects involving digital audio also use a sequencing program that is able to combine MIDI and audio data. The students are expected to work independently to complete reading assignments according to the schedule outlined in the course syllabus. While due attention will be given to discussion of this material in class, the primary focus of class sessions will be hands-on application, to ensure that students master a set of skills on the computer.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 461W: Studies in Music History: Antiquity to 1600 (3-3 Credits: Maximum of 6 Credits) (WF) (BA)
Old Listing Effective Through Summer 2023:

In-depth study of selected aspects of music and culture from antiquity to 1600, with emphasis on writing and research.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 462W: Studies in Music History: 1550-1750 (3-3 Credits: Maximum of 6 Credits) (WF) (BA)

Old Listing Effective Through Summer 2023:

In-depth study of selected aspects of music and culture from 1550-1750, with emphasis on writing and research.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 463W: Studies in Music History: 1700-1900 (3-3 Credits: Maximum of 6 Credits) (WF) (BA)
Old Listing Effective Through Summer 2023:

In-depth study of selected aspects of music and culture from 1700-1900, with emphasis on writing and research.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 466: Advanced Conducting II (2-2 Credits: Maximum of 8 Credits) (BA)
Old Listing Effective Through Summer 2023:

Standard scores of symphonies, tone poems, operas, oratorios, and shorter vocal and instrumental works studied from the viewpoint of the conductor.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 467: Opera Workshop (1-3 Credits: Maximum of 6 Credits) (BA)
Old Listing Effective Through Summer 2023:

History, analysis, and production of operas from sixteenth century to present.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 468: Acting for Singers (2-2 Credits: Maximum of 4 Credits)
Old Listing Effective Through Summer 2023:

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 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.

Changes Effective Fall 2023:

- Remove Prerequisites

MUSIC 471: Structural and Sixteenth-Century Counterpoint (2 Credits) (BA)
Old Listing Effective Through Summer 2023:

Advanced species counterpoint and its application to the sixteenth-century style.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 472: Eighteenth-Century Counterpoint (2 Credits) (BA)
Old Listing Effective Through Summer 2023:

Imitative and nonimitative counterpoint in the style of Bach.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 478: Vocal Literature (3 Credits) (BA)
Old Listing Effective Through Summer 2023:

Introduction to the literature for solo voice in opera, oratorio, cantata, art song, and chamber music from the baroque to the present.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 480: Opera Literature (3 Credits) (BA)**Old Listing Effective Through Summer 2023:**

Studies in the development of the opera from 1600 to the present, treating both libretto and music.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 481: Keyboard Literature (3 Credits) (BA)**Old Listing Effective Through Summer 2023:**

Studies in the development of keyboard music and instruments; a survey of all eras using listening, analysis, and performance.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 485: Chamber Music Literature (3 Credits) (BA)**Old Listing Effective Through Summer 2023:**

Survey of chamber music for strings, winds, and brass instruments from the mid-16th century to the present day.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 487: Orchestral Literature (3 Credits) (BA)**Old Listing Effective Through Summer 2023:**

Survey of orchestral literature.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 491: Advanced Chamber Ensemble (1-1 Credits: Maximum of 4 Credits)**Old Listing Effective Through Summer 2023:**

Preparation and performance of advanced chamber music. MUSIC 491 Advanced Chamber Ensemble (1 per semester/maximum of 4) Advanced Chamber Ensemble meets at least two hours per week – once with the instructor for coaching and at least once for an additional rehearsal without the instructor's presence. Course objectives include, but are not limited to, the development of rehearsal and ensemble skills, an increased awareness of musical styles, public performance(s) of works prepared, and the development of the interpersonal skills necessary for the players to operate as a unit. Chamber music is an integral part of instrumental musical training. It is an important partner with conducted ensembles in the performance preparation of musicians. Evaluation of student work is based on participation in rehearsals, the progress made by the ensemble, and the quality of the ensemble's performances. The course is offered during fall and spring semesters.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 495A: Student Teaching: General Music (5-7 Credits: Maximum of 7 Credits) (BA)**Old Listing Effective Through Summer 2023:**

MUSIC 495A Student Teaching: General Music (6-8)(BA) This course meets the Bachelor of Arts degree requirements. As required by the Pennsylvania Department of Education, all music education students seeking certification must enroll in a culminating student teaching experience which closely approximates a full-time working experience in the public schools of Pennsylvania. The objective of this course is to offer a transition between student life and professional life directly prior to graduation. This total immersion in the field of GENERAL MUSIC allows the student to learn from and work with a mentor teacher in an off-campus setting. During the semester prior to the course, cooperating music teachers and school districts are contacted requesting their participation and music education students interview with the teachers. The students then move to the community in which they will be student teaching and adopt the practices of that mentor teacher within that specific school district. Students are evaluated by both the mentor teacher and a Penn State supervisor who visits a minimum of four times per semester. This course is offered every semester.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 495B: Student Teaching: Choral Music (5-7 Credits: Maximum of 7 Credits) (BA)**Old Listing Effective Through Summer 2023:**

MUSIC 495B Student Teaching: Choral Music (5-7)(BA) This course meets the Bachelor of Arts degree requirements. As required by the Pennsylvania Department of Education, all music education students seeking certification must enroll in a culminating student teaching experience which closely approximates a full-time working experience in the public schools of Pennsylvania. The objective of this course is to offer a transition between student life and professional life directly prior to graduation. This total immersion in the field of CHORAL MUSIC allows the student to learn from and work with a mentor teacher in an off-campus setting. During the semester prior to the course, cooperating music teachers and school districts are contacted requesting their participation and music education students interview with the teachers. The students then move to the community in which they will be student teaching and adopt the practices of that mentor teacher within that specific school district. Students are evaluated by both the mentor teacher and a Penn State supervisor who visits a minimum of four times per semester. This course is offered every semester.

Changes Effective Fall 2023:

- Change Prerequisites

MUSIC 495C: Student Teaching: Instrumental Music (5-7 Credits: Maximum of 7 Credits) (BA)**Old Listing Effective Through Summer 2023:**

MUSIC 495C Student Teaching: Instrumental Music (5-7)(BA) This course meets the Bachelor of Arts degree requirements. As required by the Pennsylvania Department of Education, all music education students seeking certification must enroll in a culminating student teaching experience which closely approximates a full-time working experience in the public schools of Pennsylvania. The objective of this course is to offer a transition between student life and professional life directly prior to graduation. This total immersion in the field of INSTRUMENTAL MUSIC allows the student to learn from and work with a mentor teacher in an off-campus setting. During the semester prior to the course, cooperating music teachers and school districts are contacted requesting their participation and music education students interview with the teachers.

The students then move to the community in which they will be student teaching and adopt the practices of that mentor teacher within that specific school district. Students are evaluated by both the mentor teacher and a Penn State supervisor who visits a minimum of four times per semester. This course is offered every semester.

Changes Effective Fall 2023:

- Change Prerequisites

NAVSC 402: Leadership and Ethics (3 Credits)

Old Listing Effective Through Summer 2023:

The Navy's Resource Management Program (personnel management), counseling techniques, military justice, prevention of substance abuse, and naval correspondence and publications. NAVSC 402 Leadership and Ethics II (3) NAVSCI 402 Leadership and Ethics (3) – A capstone course building upon the foundation of previous Naval Science courses, Leadership and Ethics ensures students have a solid understanding of and an appreciation for ethical standards and decision making. It provides midshipmen with the ethical foundation and basic leadership tools needed to be effective junior officers and provide the high quality leadership our country and Department of Defense will need in the 21st Century. The curriculum is divided into two distinct but overlapping sections; the first focused on ethical theory and major Western ethical philosophy followed by the practical application of leadership as it pertains to a junior officer's duties and responsibilities. Ethical theory is introduced in an academic, discussion-oriented format in order to provide midshipmen with a solid foundation and understanding of various moral, ethical and leadership philosophies. This serves to guide, refine and strengthen a junior officer's character and increase one's awareness of different ethical decision-making tools. The latter portion of the course challenges the midshipmen to apply the first part of the course (i.e. ethical leadership theory) in discussions and practical application exercises of their future duties, responsibilities and expectations of a junior officer in the United States Navy or Marine Corps. Extensive use of case studies throughout the curriculum reinforces the importance of ethical decision-making by naval leaders.

Changes Effective Fall 2023:

- Change Prerequisites

PHOTO 100: Introduction to Photography (3 Credits) (BA) (GA)

Old Listing Effective Through Summer 2023:

An introduction to the aesthetics, history, and science of photography including practical and critical approaches to the art of photography. PHOTO 100 Introduction to Photography (3) (GA) PHOTO 100 is an introduction to the aesthetics, history, and science of photography including practical and critical approaches to the art of photography for beginning students. The course will introduce students to photography as an art form and as an important medium in commercial applications, news and journalism, science, and industry. The course will look at photography in a social/historical context and showcase the work of important photographers. The course will examine the impact of technological, economic, and cultural forces on photography and, in turn, the role that it plays in our daily life, culture, and society. The course will also expose students to the various styles and techniques used in making photographs and give them the opportunity to gain experience and practical know-how in creating their own photographs. Through the process of assembling and critically examining 'galleries' of their own work and the work of others, they will be encouraged to develop a more informed critical point of view about photography as an art and important

form of human expression. Grading will be based on three photographic assignments that will account for 50% of the semester grade. In addition, there will be four exams (on photographic history, aesthetics, technical aspects of photography, and image manipulation) that will account for 40% of the semester grade. The remaining 10% of the semester grade will be based on participation in class critiques. Students will be required to have access to a digital camera and the internet. PHOTO 100 will be offered in the fall and spring semesters each year.

Changes Effective Fall 2023:

- Recert GA
- Change Description

PHYS 237: Introduction to Modern Physics (3 Credits)

Old Listing Effective Through Summer 2023:

Relativity and quantum theory applied to selected topics in atomic, molecular, solid state, and nuclear physics. PHYS 237 Introduction to Modern Physics (3) A broad survey of post-classical physics, taken by physics and other science and engineering students. Required of all physics majors, it is typically taken in the fourth-semester. The course covers much of the modern physics curriculum including topics such as special relativity, the concepts and mathematical formalism of quantum mechanics, both in one and three-dimensional model systems, and the applications of quantum theory to topics ranging from atomic/molecular, nuclear, particle, and condensed matter physics to astrophysics. The course is a prerequisite for a junior-senior course in quantum mechanics.

Changes Effective Fall 2023:

- Change Credits
- Change Description
- Change Prerequisites

RPTM 120: Leisure and Human Behavior (3 Credits) (US) (IL) (GS)

Old Listing Effective Through Summer 2023:

Leisure from historical and contemporary perspectives, including forces shaping leisure behavior, and relationships among leisure, the environment, and social institutions. RPTM 120 Leisure and Human Behavior (3) (GS;US;IL) Leisure and Human Development introduces leisure from historical and contemporary perspective including forces shaping leisure behavior, and relationships among leisure, the environment, and social institutions. Special attention is given to the role of leisure in individual health and wellness. Main topics include: the role of leisure in past and present societies; the ways in which leisure, recreation, and play relate to personal health and wellness, the economy, personal identity, work, religion, sexuality, race, class, socio-economic status, time use patterns, and education; leisure's contribution to human development throughout the life course; the role of leisure in one's life, specialization in leisure activities, leisure careers, serious forms of leisure, and leisure and addiction; and trends in the world economy and culture, technology, urbanization and suburbanization, governance, and demography and how they may influence leisure behavior. Student performance is evaluated through exams and concept maps undertaken in class. Students also examine their own leisure by constructing a one-week time diary. The diary involves providing a detailed account of time allocated to work, personal maintenance, and free time. Students analyze their data, calculate statistics about their time use, and write a reflexive essay that connects their findings to class concepts. The time diary also includes wearing a pedometer for one week to gauge physical activity.

Changes Effective Fall 2023:

- Change Abbreviated Title
- Change Title
- Change General Education Recert

RUS 1: Elementary Russian I (4 Credits) (BA)**Old Listing Effective Through Summer 2023:**

Audio-lingual approach to basic Russian; writing. Students who have received high school credit for two or more years of Russian may not schedule this course for credit, without the permission of the department.

Changes Effective Fall 2023:

- Change Description

RUS 2: Elementary Russian II (4 Credits) (BA)**Old Listing Effective Through Summer 2023:**

Audio-lingual approach to basic Russian continued; writing. Students who have received high school credit for four years of Russian may not schedule this course for credit, without the permission of the department.

Changes Effective Fall 2023:

- Change Description
- Change Prerequisites

RUS 3: Intermediate Russian (4 Credits) (BA)**Old Listing Effective Through Summer 2023:**

Emphasis on reading unsimplified texts; composition; grammatical analysis.

Changes Effective Fall 2023:

- Change Title
- Change Description
- Change Prerequisites

RUS 403: Advanced Russian Conversation and Composition (3 Credits)**Old Listing Effective Through Summer 2023:**

A conversation and composition course that includes situational topics as well as complex academic discourse. RUS 403 Advanced Russian Conversation and Composition (3) (IL) The Russian 403 course is intended primarily to develop students' oral and composition skills in Russian. The main focus of the course will be on speaking and understanding spoken Russian and writing on a variety of themes. The students will engage in different oral activities on a number of topics from the everyday life of an average Russian person to more complex discussions of current events, culture, history, the arts, and politics. The students will be expected to do a good deal of talking in Russian both with classmates and with the instructor in class, and prepare oral and written assignments at home. The written exercises will enhance the students' ability to perform well on the class assignments. The course will include a practical review and practice of some of the most complex and troublesome aspects of Russian grammar. There will be a considerable emphasis on vocabulary, word-formation for vocabulary building, and communicative strategies in the course. One of the goals of the course is also to increase the students' understanding of Russian

culture and the Russian way of life based on Russia's history and current reality.

Changes Effective Fall 2023:

- Change Description
- Change Prerequisites
- Add IL
- Add BA
- Add Concurrent

RUS 410: Heritage Russian 1 (3 Credits) (IL)**Old Listing Effective Through Summer 2023:**

Introductory course for heritage speakers of limited linguistic proficiency aiming at teaching basic reading, writing, and grammar skills in Russian. RUS 410 Heritage Russian 1 (3) (IL) The course is aimed at "heritage speakers" of Russian, i.e., those who grew up speaking Russian in the family without a full Russian educational and cultural background. It is designed for students who have speaking and comprehension ability in Russian, but have minimum or no exposure to writing and reading. This course teaches basic skills of writing, reading, and grammar. It includes simple original reading material (fairy tales, poems, songs), as well as visual and multimedia material, such as cartoons, advertising, etc.) The course will enhance the students' knowledge and understanding of Russian culture as well as increase their awareness of their own complex cultural identity (Students with reading and limited writing proficiency should consider Heritage Russian II (RUS 411).

Changes Effective Fall 2023:

- Change Abbreviated Title
- Change Title
- Change Credits
- Change Description
- Add BA

SPAN 132: Afro-Hispanic Civilization (3 Credits) (IL) (BA)**Old Listing Effective Through Summer 2023:**

A general introduction to human and cultural elements of African origin in Spanish- and Portuguese-speaking countries of Latin America. SPAN 132 / AFR 132 / AFAM 132 Afro-Hispanic Civilization (3) (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. This course focuses on the presence and participation of African peoples and their descendants in the formation and development of societies and cultures in representative areas of the Caribbean, South America, and Central America and on the evolution, diversity, and richness of the African heritage therein. Course content includes the African background, the experience and impact of slavery, the social, cultural, and economic heritage of slavery, the role of race in Latin America, and Afro-Hispanic intellectual, literary, and artistic developments (e.g., aspects of folklore, music). The course aims to provide students with a general introduction to human and cultural elements of African origin within the Spanish- and Portuguese-speaking nations of the Americas so that they may be more knowledgeable of the meaning, significance and widespread influence of the African diaspora. It proposes to provide the student with a better understanding of Africa's contribution to Latin American identity, diversity, culture, and development; to promote appreciation for

the values and practices of other cultures, and greater awareness of the relations between the nations of the region and the United States.

Changes Effective Fall 2023:

- Recertification
- Change Description

THEA 207: Gender and Theatre (3 Credits) (US) (GA) (BA)

Old Listing Effective Through Summer 2023:

A study of theatre and drama literature as formed by issues of gender, race, and ethnic background. THEA 207 Gender and Theatre (3) (GA;US) (BA) This course meets the Bachelor of Arts degree requirements. Theatre 207 provides a basic survey of issues of representations of gender identity in theatre. The course will trace women's experiences in theatre from their absence on European classical stages to the more recent formation of feminist theatres. The course will explore issues of sexual orientation and gender identity as presented through drama and performance. The plays and writings chosen for study may include selections from African, European, African American, Latina, Asian American, Anglo American, and Native American playwrights. The course will examine issues of gender as they are presented by women of different races and cultures, by men of different races and cultures, and by women and men of various sexual orientations. The goal of the course is to examine the ways theatre and theatrical performances have portrayed individuals within a pluralistic society based on gender identity and ethnicity. Theatre has existed in every known civilization, but until recently, the contributions of predominantly white European males have provided the basis for the study of theatre. Most drama anthologies include plays written predominantly by white European males. By focusing on gender as it has been and is portrayed in theatre from diverse perspectives, THEA 207 will encourage an aesthetic appreciation of the art of theatre while exploring issues of gender identity on artistic creation and critical response.

Changes Effective Fall 2023:

- Change Abbreviated Title
- Change Description

THEA 282: Production Practicum (3-6 Credits: Maximum of 6 Credits) (BA) (GA)

Old Listing Effective Through Summer 2023:

Introduction to all aspects of theatre production—analysis, design, construction, production, performance—for non-theatre majors. THEA 282 THEA 282 Production Practicum (3) (GA)(BA) This course meets the Bachelor of Arts degree requirements. This course will introduce and expand skills in the performance and production of plays. Students will learn about the play, the playwright, the time period, the performance history of the chosen play, and its relation to theatre history and the cultural values of society particularly as they are depicted in the arts. Students will participate actively in individually selected aspects of design/construction and performance (students may choose to focus on performance, to work primarily with the design/construction team, or to combine performance with design/technical work). After the completion of the production, students will evaluate their work.

Changes Effective Fall 2023:

- Change Description

WFS 446: Wildlife and Fisheries Population Dynamics (3 Credits) Old Listing Effective Through Summer 2023:

Concepts and estimation of mammalian, avian, and fish populations; processes of mortality, natality, growth, and regulation.

Changes Effective Fall 2023:

- Change Abbreviated Title
- Change Description
- Change Prerequisites
- Add Recommended Preparation

Course Changes: Effective Spring 2024

AE 222: Building Modeling and Documentation (3 Credits)

Old Listing Effective Through Fall 2023:

Materials and methods of construction used in residences, and preparation of working drawings for a small building. The course objective is for students to understand construction documents, communicate construction information with sketches and to create drawings and specifications. The course is organized around a series of modules related to working drawings. These modules consist of: 1) reading and interpreting construction documents, 2) hand drawn sketches, from existing mock-ups, from existing drawings, from assigned details of existing campus buildings, from only given material and connection parameters, 3) CAD drawings of plans, elevations, wall sections, building sections, details, schedules. The final partial construction documents will be in accordance to CAD standards and various codes, including zoning, International Building Code, ADA, etc. 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, in class assignments, exams, quizzes and attendance. In class assignments are generally short and given to demonstrate a concept or as practice. Special facilities consist of: 1) the drafting room, where various drawings and specifications are utilized and where students prepare sketches, 2) the computer lab, where students have access to computer aided design software, presentation software and communication software, 3) the material samples room, where actual material samples and fasteners are examined and understood and 4) the hands-on mock-up room, where true size mock-ups that represent the students drawings are built by student groups.

Prerequisites: Enforced Prerequisite at Enrollment: EDSGN 130 or EDSGN 100

Changes Effective Spring 2024:

- Title
- Abbreviated Title
- Description
- Prerequisites
- Add Recommended Preparation

AE 309: Architectural Acoustics (3 Credits)

Old Listing Effective Through Fall 2023:

Acoustical design for good hearing conditions and noise control; construction details, materials, acoustical properties of room shapes; sound absorption, transmission. Course includes practicums. AE 309 Architectural Acoustics (3) Architectural acoustics encompasses four distinct areas of study: room acoustics, sound isolation, mechanical

system noise and vibration and sound reinforcement. The course concentrates on the performance of the building components as they impact on the acoustical environment. The goal of good acoustical design is to provide an environment to afford occupants of a building a high quality listening environment and to minimize intrusion by offending noises. By manipulation of building materials, spatial relationships and geometry, the students learn to improve acoustical performance of a building. Through lectures, practicums, projects, tours to campus performance venues and examinations, the concepts of acoustical design are delivered and reinforced. The course offers students opportunity to work in team settings and to present their work orally to their peers. The course is required for all architectural engineering students, typically taken in the 3rd-year. PHYS 213 is a prerequisite for this course. This course is a prerequisite for Advance Architectural Acoustics and Noise Control. Students not in the architectural engineering curriculum are encouraged to consult with the instructor prior to enrolling in the course.

Prerequisites: Enforced Prerequisite at Enrollment: PHYS 213

Changes Effective Spring 2024:

- Title
- Abbreviated Title
- Description
- Remove Prerequisites
- Add Concurrent

AED 211: Interpreting Art Experience: Social and Behavioral Perspectives (3 Credits) (BA)

Old Listing Effective Through Fall 2023:

Examination of psychological, cultural, aesthetic, philosophical and educational perspectives on creation and response to art in children, adolescents and adults. AED 211 Interpreting Art Experience: Social and Behavioral Perspectives (3) This course meets the Bachelor of Arts degree requirements. This course will examine the shared human experience of making and responding to visual images and artifacts from the broadest possible range of perspectives, encouraging students to develop an understanding of the role of art experience in their own lives and in the lives of others. How art is learned within specific cultures and subcultures, how understanding and appreciation of particular images and objects evolves, and how experience and learning interacts with fundamental processes of perception, cognition, and interpretation are central themes. This course will examine the shared human experience of making and responding to visual images and artifacts from the broadest possible range of perspectives, encouraging students to develop an understanding of the role experience in their own lives and in the lives of others. Students will draw upon their own personal and cultural histories and consult accounts written by others to explore the role of visual art in contemporary life. Classic and contemporary studies of artistic development and aesthetic response will be reviewed through well-illustrated lectures and amplified through students' active involvement in small scale, collaborative research studies based upon methods commonly used to study the art experience of children, adolescents, and adults without professional expertise in the visual arts; these activities will include close observation, interviews, and the design of preference and drawing studies. As a final course project, each student will construct a case study of a child, adolescent, or adult which describes in detail one perspective on that individual's experience of art in the home, school, museum, and/or other cultural institutions and settings.

Changes Effective Spring 2024:

- Change Number
- Change Title
- Change Description
- Add Writing Attribute W and GA

AED 225: Diversity, Pedagogy, and Visual Culture (3 Credits) (BA) (US)

Old Listing Effective Through Fall 2023:

Issues of diversity in art, education, visual culture, and pedagogy. AED 225 Diversity, Pedagogy, and Visual Culture (3) (GA;US)(BA) This course meets the Bachelor of Arts degree requirements. This interdisciplinary course will serve to introduce students to critical understandings of issues of diversity, as they arise in contexts such as the art, world, cultural institutions (such as museums and community arts organizations), schools, visual culture, and the culture, educational texts (such as curricula), and history, while developing a theoretical base from educational and cultural theory. By the end of the course, students will understand diversity as broadly defined in relation to visual culture and be able to critically explore the complex dynamics of race, gender, sex, and class, and the pedagogical issues posed by diversity.

Changes Effective Spring 2024:

- Change Description
- Add GA

AERSP 424: Advanced Computer Programming (3 Credits)

Old Listing Effective Through Fall 2023:

Engineering and scientific programming topics: object oriented programming, parallel programming, and various modern languages (e.g. C++, Java, and Ada). AERSP 424 Advanced Computer Programming (3) This course presents an advanced view of computer programming, mainly using Java, C++, and Ada95. The use of current operating systems (e.g. Linux and Unix) and compilers (e.g. gcc) will also be presented. Object Oriented Programming will also be discussed in detail. Object Oriented Programming is quite different than functional or procedural programming, and it is difficult to learn on your own. The differences and similarities between Java and C++ and Ada95 will also be discussed. Hands-on programming will be a key part of the course. This course is one of the Core Courses for the Graduate Minor in High Performance Computing, and will also be a technical elective in Aerospace Engineering.

Changes Effective Spring 2024:

- Change Prerequisites

AGBM 170Z: Investigating the U.S. Food System: How food moves from field to table – LINKED (3 Credits) (US) (GS)

Old Listing Effective Through Fall 2023:

The American food system is a product of complex interaction of three systems: the natural ecosystem, the managed agricultural system, and the socio-economic system. Farming, food processing, food distribution, and consumption decisions are all governed by the interaction of these systems. Consequences of these decisions, along with the interactions themselves, have generated a number of overarching scientific and social "hot-button" topics that affect or are affected by the food system such as genetically modified organisms (GMOs), organic crops and food, agricultural and food policy, environmental implications from

agriculture food safety, food safety, diet and health, agricultural trade and international development, and domestic food insecurity and food access. Students in this course will investigate and discuss all of these topics by reading both popular press accounts and peer-reviewed academic research, and by hearing guest speakers from a variety of fields and academic disciplines. However, to provide additional relevance, the course will use specific foods or crops to provide a more concrete examination of these topics. For a wide range of foods and crops grown in or imported to the U.S, students will learn the following:

1. Where many of our crops are grown and why.
2. How labor intensive, chemical intensive, biotechnology intensive, and equipment intensive many of our crops are.
3. What U.S. policies affect production, distribution, and consumption of many crops and food.
4. How large agribusiness companies may influence our crops' production, distribution, and consumption.
5. How consumer groups may influence our crops' production, distribution, and consumption. And,
6. Whether or not alternative production and marketing systems exist for many crops.

Changes Effective Spring 2024:

- Change Number
- Add GN
- Change Title
- Change Abbreviated Title
- Change Description

ANSC 426: Advanced Judging and Selection (2 Credits)

Old Listing Effective Through Fall 2023:

ANSC 426 provides students with critical thinking and communication skills through evaluation and selection of animals and animal products. This course provides intensive training in evaluation and selection of meats, dairy, poultry, horses or meat animal livestock using subjective and objective measurements as well as the use of oral or written reasons to explain and defend decisions. Enrolled students may compete against students from other colleges and universities at regional and national contests.

Prerequisites: Enforced Prerequisite at Enrollment: ANSC 225 or ANSC 226 or ANSC 217 or ANSC 421 or ANSC 424

Changes Effective Spring 2024:

- Change Description
- Change Prerequisites

ANTH 445W: Ethnographic Film (3 Credits) (WAC)

Old Listing Effective Through Fall 2023:

Comparisons of written and visual ethnography; critical assessment of ethnographic film; cross-cultural variation. ANTH 445W Ethnographic Film (3) Students will be presented with both written and filmed ethnographic material dealing with a number of cultural subsystems (e.g., kinship and family relations, religion, political systems) and with a number of different world cultures. The aim of the course is three-fold: 1) to convey through visual anthropology the complexity and inter-relations of cultural subsystems, which is often difficult to do in written sources; 2) to develop the skills of critical viewing of ethnographic film; and 3) to provide students with critiques of their written work that will enable them to learn and practice the skills of clear, organized and

convincing writing. Towards these ends, students will be expected to read and view weekly assignments for selected topics, to write twelve critical essays that compare the written and filmed sources, and to evaluate the aims, effectiveness, and methods of the films. Essays will be graded for both content and form and will provide a basis for class discussion. Students will also be required to write a term paper focused on a particular ethnographic film of their choice (one not shown in class) supplemented by additional research. As an aid in the writing of the paper, at least one class period will be devoted to learning how to do library research in Anthropology. This course will complement other courses in Anthropology such as ANTH 045 and ANTH 001. The course can be used to fulfill a requirement in both the major and minor in Anthropology, and will fulfill both a Writing Intensive requirement and a Bachelor of Arts social/behavioral science requirement. It will also provide students in other departments with the opportunity to study aspects of diverse, non-western cultures.

Changes Effective Spring 2024:

- Add Prerequisites

ARAB 110: Arab Language, Cultures, and Current Topics (3 Credits) (BA) (IL) (GH)

Old Listing Effective Through Fall 2023:

Fourth-semester Modern Standard Arabic: study of cultures through authentic discourse, texts, film; development of reading, writing, listening, speaking skills. ARAB 110 Arab Language, Cultures, and Current Topics (3) (GH;IL) (BA) This course meets the Bachelor of Arts degree requirements. This language and culture course, which fulfills the Humanities or the International Cultures requirement within General Education or the Other Cultures requirement within the Bachelor of Arts degree, will offer a continuation of the study of the Modern Standard Arabic language and an exploration of several aspects of Arabic cultures, such as the religious and cultural traditions of the month of Ramadan, the differences between American and Arab relationships, preparing for a trip to the Middle East, and an introduction and brief exposition of the Palestinian problem. The course is designed for students who have completed ARAB 003 in our language sequence or have the equivalent level of language proficiency. Students will develop listening, reading, writing, and speaking skills, and will be introduced to a range of Arabic cultures and encouraged to see both commonalities and differences among them. The material is always presented through culturally rich texts. The course offers opportunities for students to increase their knowledge and appreciation of not only the language, in its Modern Standard form, but also the varieties of cultural production in the Arabic-speaking world, in their many facets and diverse manifestations. Along with continuation of language learning, students are exposed to Web sites, film, music, comics, literature etc. Students' assignments use a combination of reading, writing, listening, and researching skills. Students often work in groups, performing oral and written class activities. This course serves as a prerequisite for ARAB 401.

Prerequisite: ARAB 3 or permission of program

Changes Effective Spring 2024:

- General Education Recertification
- Change Description

BBH 301W: Values and Ethics in Biobehavioral Health Research and Practice (3 Credits) (WAC)

Old Listing Effective through Fall 2023:

Examines bases for choices among values in personal and professional relations in human development processes and supporting services. This class is meant to give students both background knowledge of and practice in the process of ethical decision making. Students will learn the historical, philosophical, and psychological concepts underlying the study of morality and ethics. Course content will include the history and rationale for regulations regarding the ethical practice of research, medicine, and public health.

Prerequisite: Enforced Prerequisite at Enrollment: BBH 101

Changes Effective Spring 2024:

- Prerequisites
- Description

BIOL 160N: Fitness with Exercise Physiology (3-3 Credits: Maximum of 3 Credits) (BA) (GHW) (GN)
Old Listing Effective through Fall 2023:

Biology of Exercise is an integrative exercise physiology course that combines performing physical activity (Kinesiology) and applying biological principles (Biology). This course will explain the benefits, changes, and processes the body exhibits while exercising. Students will gain knowledge and comprehension through both a lecture (or online) setting (approximately half of the class meetings) as well as an activity component (approximately half of the class meetings) in which students will demonstrate their health related components of fitness. This includes, but is not limited to, muscular strength, muscular endurance, flexibility, power, cardiorespiratory endurance, and body composition. In the lecture component, students will describe biological principles including homeostasis, nutrition, the structure and function of musculoskeletal, cardiovascular, and respiratory systems. At the completion of this course, students will be able to argue for the lifelong significance of exercise including why it is important, benefits related to organ systems, and disease prevention.

Changes Effective Spring 2024:

- Change Credits
- Change Abbreviated Title

CE 335: Engineering Mechanics of Soils (3 Credits)
Old Listing Effective Through Fall 2023:

Soil compositions, classification, subsurface exploration, ground water flow, stress analysis, compaction, soil behavior, bearing capacity, lateral earth pressure, slope stability. C E 335 C E 335 Engineering Mechanics of Soils (3) This course explores the engineering properties of soils, fundamental soil mechanics, and their applications of foundation design and analysis. Specific topics covered in this course include soil compositions, soil classification, subsurface exploration, ground water flow and seepage analysis, stress analysis, compaction, consolidation, strength behavior, bearing capacity, lateral earth pressure, and slope stability analysis.

Changes Effective Spring 2024:

- Change Prerequisites
- Concurrent Course

CE 336: Materials Science for Civil Engineers (3 Credits)
Old Listing Effective Through Fall 2023:

Introduction to civil engineering materials; their structure and behavior: relationship between structure and behavior. C E 336 C E 336 Materials Science for Civil Engineers (3) This course introduces engineering students to the structure, properties and behavior of construction materials, providing the bridge between engineering mechanics and engineering design. The course is an engineering science course focused at providing the students with a working knowledge of the nature and engineering properties of construction materials to understand prediction models and statistical variations for quality control. The course provides an introduction to aggregates, concrete, asphalt, timber, steel, structural alloys, and polymers used in the civil infrastructure and in building construction.

Changes Effective Spring 2024:

- Change Description
- Change Prerequisites
- Change Concurrent Course

CE 340: Structural Analysis (3 Credits)
Old Listing Effective Through Fall 2023:

Analysis of statically determinate and indeterminate trusses, beams, and frames; reactions, axial forces, shears, moments, deflections. Introduction to influence lines. The course includes an introduction to structural systems and basic analysis methods for beams, frames, and trusses. Topics covered include the analysis of statically determinate and indeterminate structures, deflection calculations, influence lines, and an introduction to the stiffness method and a software package for structural analysis.

Changes Effective Spring 2024:

- Change Prerequisites

CE 422: Trans Plan (3 Credits)
Old Listing Effective Through Fall 2023:

Transportation systems planning, programming, and management; modeling and simulation, data collection, analysis, and forecasting. C E 422 C E 422 Transportation Planning (3) In this course, students acquire basic knowledge on the history and recent developments in transportation planning problems and quantitative methods. They will develop an understanding of transportation planning, transportation modeling, transportation system simulation, data collection techniques, and gain laboratory experience with each. Students will use mathematical/statistical models and GIS software to analyze, simulate, and forecast the demand for transport services. They will gain familiarity with the software used in transportation planning practice.

Changes Effective Spring 2024:

- Change Description
- Change Prerequisites

CE 436: Construction Engineering Materials (3 Credits)
Old Listing Effective Through Fall 2023:

Design, production, application, specification, and quality control of construction materials unique to civil engineering. CE 436 Construction Engineering Materials (3) C E 436 provides students with a working knowledge of the safe design, production and application of quality construction materials unique to civil engineering. The course builds upon the understanding of civil engineering materials gained in the

introductory course. C E 436 focuses on the materials design and quality control of aggregates, steel, portland cement concrete, and asphalt concrete.

Changes Effective Spring 2024:

- Change Description
- Change Prerequisites

CE 475: Water Quality Chemistry (4 Credits)

Old Listing Effective Through Fall 2023:

Chemistry applicable to the understanding and analysis of water quality, pollution, and treatment. C E 475 C E 475 Water Quality Chemistry (4) C E 475 Water Quality Chemistry is a senior/graduate-level course focused on both theoretical aspects of water chemistry and applied aspects of engineering practice. The course will cover a wide range of fundamental chemical principles that will be investigated further in the laboratory exercises and through an independent research project. The course covers reaction stoichiometry and reaction type with specific examples of processes typically encountered in water, wastewater and hazardous waste treatment situations. The course distinguishes between kinetic and equilibrium reactions and presents mathematical formulations for both types of reactions. The course reviews thermodynamics and electrochemistry and relates them to equilibrium constants and the spontaneity of reactions. The course covers redox reactions especially with respect to the corrosion of civil infrastructure, the generation of acid rock drainage, and biological wastewater treatment processes. The course covers acid/base reactions especially with respect to disinfection of drinking water and pH adjustments commonly used to enhance air stripping of pollutants. The course introduces the use of computer models for determining chemical speciation of acid/base constituents. The course covers alkalinity and the carbonate system especially with respect to the issues of acid rain, acidification of the Earth's oceans, and limestone buffering of surface waters in Pennsylvania. Computer models are used to calculate chemical speciation in carbonate-containing systems. The course covers pH-dependent solubility of common minerals – primarily carbonates, hydroxides and aluminosilicates. The course covers engineering applications related to metal solubility including water softening, coagulation for turbidity removal in water treatment plants, heavy metal generation from acid rock drainage, and heavy metal removal in hazardous waste treatment. The course covers complexation reactions especially with respect to effects on metal solubility and toxicity. Computer models are used to calculate chemical speciation in multi-complexant systems. The course covers analytical chemistry especially with respect to the most common parameters measured in water and wastewater treatment systems, and with respect to the principles of measurement (i.e. gravimetric, spectrometric, volumetric, potentiometric analyses). The course involves a research project on a local water quality problem of concern. In the past, this project has focused on the proposed "Beneficial Reuse" of wastewater in Centre County, and on the impact of acid rock drainage from the construction of I-99 on Buffalo Run in Centre County.

Changes Effective Spring 2024:

- Change Description
- Change Prerequisites

CE 479: Environmental Microbiology for Engineers (3 Credits)

Old Listing Effective Through Fall 2023:

Intro microbiology for engineers; microbe structure, function, and diversity; environmental ecosystems; diagnostic labs. CE 479

Environmental Microbiology for Engineers (3) C E 479 Environmental Microbiology for Engineers is a senior/graduate-level course comprised of three main sections: (1) the fundamentals of microbial structure, function, nutrition, and growth for students with no prior formal instruction in microbiology; (2) microbial diversity and ecology; and (3) the application of these fundamental microbial principles to environmental systems. In the fundamentals section, the course covers microbial nomenclature, macromolecules, cell biology, energetics, growth, and genetic regulation. This is illustrated with calculations of thermodynamic constraints in microbially catalyzed reactions, the calculation of efficiencies based on energy conservation from common pathways, and the connection of these efficiencies to microbial growth in a chemostat. Building on these fundamental concepts of metabolic potential and conserving energy and acquiring reducing equivalents from redox reactions, the second section covers the reactions and energetics of the primary microbial functional diversity such as phototrophy, lithotrophy, autotrophy, anaerobic respirations, and fermentations. It also introduces modern molecular biology techniques for studying microbial systems, and pulls the concepts of functional diversity together by illustration with the major nutrient cycles, including discussions of environments in which each reaction might be encountered. Finally, the last section applies these ecological principles to several specific engineered environments of interest. Homework assignments throughout the semester involve questions about the methods, findings, or applications of recent articles that highlight the recently covered material, giving the students experience in the critical evaluation of primary literature and demonstrating the relevance of the material to environmental microbiology research and application. Complementing the progression of the lectures are eight instructional laboratories that provide hands-on application of diagnostic microbiological techniques to the characterization of environmental enrichment cultures and pure cultures. For example, a microscopy lab immediately follows the lecture material on cell biology, an enrichment experiment follows the material on nutrition, an enumeration experiment follows the section on microbial growth, etc. The final seven weeks of the laboratory period are devoted to group projects, in which students apply the techniques they have learned as appropriate to answer specific short-term research hypotheses. The final period is devoted to group presentations of their projects.

Changes Effective Spring 2024:

- Change Descriptions
- Change Prerequisites

COMM 304: Mass Communication Research (3 Credits)

Old Listing Effective Through Fall 2023:

COMM 304 Mass Communication Research (3) This course provides an introduction to the logic and methods of social science research as it is employed to study topics in media. Students will be introduced to key principles of social scientific reasoning, including aspects of concept explication and effective measurement, evaluation and demonstration of causality, and reliance on empirical data. Core standards of evidence are presented for both quantitative and qualitative data, but a focus is placed on statistical evidence and reasoning. Topics include effective question wording, ethical treatment of research participants, experimental research designs, sampling and survey research, content analysis, and sound interviewing techniques. In addition, students address key ideas in statistical analysis, including principles of inference, common descriptive statistics, and widely used tests of both bivariate and multivariate relationships. Presentation of this material includes training in effective use of appropriate statistical software. Based on this training, students should be able to contribute to sound research on media-related topics in

both the academic and professional environments. In addition, significant attention is paid to evaluating research done by others. Students read and assess original research and consider the merits of such research as well as its applicability to novel studies. Based on this training, students should be prepared to better understand the results presented in social scientific research, particularly within the field of media studies, and apply this knowledge to future coursework. Beyond this, students learn how to critically evaluate quantitative research when presented in media content, such as public opinion polling, and when making professional judgments about sound organizational strategies as a response to research conducted by others. At the end of this course, students should be better prepared to engage with the increasingly complex array of statistical information available to modern companies and citizens.

Prerequisite: Enforced Prerequisite at Enrollment: (STAT 200 or SCM 200 or PSYCH 200) and (COMM 100N or COMM 110 or COMM 118 or COMM 150 or COMM 180 or COMM 260W or COMM 320 or COMM 370)

Changes Effective Spring 2024:

- Change Prerequisites

COMM 375: Public Relations Strategy (3 Credits)
Old Listing Effective Through Fall 2023:

Through a combination of case studies and lectures, this class will prepare students to build upon their knowledge of the planning process and to learn how to make strategic public relations decisions based on diverse scenarios. Specifically, they will explore problem-solving and decision-making processes in strategic communication through the analysis of case studies and the development of strategic planning documents. A significant amount of work in this class is team-based. After this class, the student will be ready to develop a public relations campaign in COMM 473, the capstone course of the public relations major.

Prerequisite: Enforced Prerequisite at Enrollment: COMM 370

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description
- Change Prerequisites

COMM 405: Political Economy of Communications (3 Credits) (BA)
Old Listing Effective Through Fall 2023:

COMM 405 takes a critical look at the structure and practices of the U.S. mass media within the U.S. and global political economy. The normative purpose of the course is to consider whether a media system operates in a manner which supports and promotes the development of a democratic society. As such, the course is both a theoretical and practical exploration of the study of political economy and the development of capitalism as it relates to the mass media. Topics include: the structure of contemporary capitalism (its nature and logic); the ownership and control of mass communications; commercialism, advertising and their impact on U.S. society, the mass media and journalism; the economic structure and organization of the cultural industries and precarious labor; the political economy of digital media; media policy; the tenets of democratic communication.

Prerequisite: Enforced Prerequisite at Enrollment: ECON 102

Changes Effective Spring 2024:

- Change Prerequisites

CRIMJ 13: Juvenile Delinquency (3 Credit) (GS)
Old Listing Effective Through Fall 2023:

Juvenile conduct, causes of delinquency, current methods of treatment; organization and function of agencies concerned with delinquency.

Cross-Listed Courses: SOC 13

Changes Effective Spring 2024:

- Recertification
- Change Description

CRIMJ 260: Statistical Analysis for the Social Sciences (3 Credits) (GQ)
Old Listing Effective Through Fall 2023:

Methods of collection, presentation, and analysis of quantitative data in the social science; procedures, interpretation, and application. CRIMJ 260 Statistical Analysis for the Social Sciences (3) This course covers the theory and methodology of statistical analysis. This course includes mathematical calculation of Univariate and Bivariate models, including mean, mode median, variance and standard deviation, Crosstabs with Chi-Square, Independent and Paired Samples t-tests, Anova and Tukey's H.S.D, Correlation and Regression. It also makes use of SPSS and publically available data sets to examine univariate data, and test hypotheses at both the bivariate and multivariate level. Students become familiar with the calculations behind the analysis and engage in the analysis and reporting of actual data.

Changes Effective Spring 2024:

- Recertification
- Change Prerequisites

CSD 218: American Sign Language I (3 Credits)
Old Listing Effective Through Fall 2023:

Introduction to sign language; provides basic receptive and expressive skills; includes out-of-class practice. CSD 218 CSD 218 American Sign Language I (3) CSD 218, American Sign Language I (AM SIGN LANG 1), is a 3-credit course that can be taken by any student interested in learning sign language. Several sections of the course are offered every semester. For Communications Sciences and Disorders majors, the course is highly recommended as an elective. The intent of the course is to provide students with a basic understanding of receptive and expressive sign language skills. The educational objectives are that students will (a) acquire a basic knowledge of expressive and receptive skills in American Sign Language (ASL), content variety signing, and finger spelling, (b) acquire a knowledge of the role of ASL in the lives of deaf people and to other cultural aspects of deafness, (c) develop and demonstrate a 600 word sign language vocabulary, and (d) demonstrate basic sign language communication skills. Students meet the educational objectives by attending class, completing reading assignments, observing video tapes, and practicing sign language inside and outside of class. Students will be evaluated using five tests. One test concerns aspects of the deaf culture as it pertains to the use of ASL and the grammatical structure of ASL. Four tests assess knowledge of vocabulary and communication skills by having the instructor sign vocabulary and questions and having students

write down or sign back the answer. CSD 218 is a prerequisite for CSD 318, Sign Language II.

Changes Effective Spring 2024:

- Change Description
- Add BA

CSD 318: American Sign Language II (3 Credits)

Old Listing Effective Through Fall 2023:

Review of basic signing, plus continued development of signing skills. CSD 318 American Sign Language II (3) CSD 318, American Sign Language II (AM SIGN LANG II), is a 3-credit course that can be taken by any student interested in learning sign language provided they have taken CSD 218, Sign Language I. The course is offered every semester. For Communications Sciences and Disorders major's, the course is highly recommended as an elective. The intent of the course is to provide students with an intermediate and some advanced understanding of receptive and expressive sign language skills. The educational objectives are that students will: 1) acquire intermediate and some advanced knowledge of expressive and receptive skills in American Sign Language (ASL) and content variety signing, 2) acquire conversational skills for interaction with members of the Deaf community, and 3) continue to develop signed vocabulary, ASL grammar, fluency in the use of signs and finger spelling, and knowledge of the Deaf culture. Speech is not permitted in the classroom. Students meet the educational objectives by attending class, completing reading assignments, observing video tapes, practicing sign language inside and outside of class, and spending at least 10 hours outside of class conversing in ASL with others who sign.

Prerequisite: Enforced Prerequisite at Enrollment: CSD 218

Changes Effective Spring 2024:

- Change Description
- Add BA

CSD 418: American Sign Language III (3 Credits)

Old Listing Effective Through Fall 2023:

In this course, the students will continue to further development of comprehension and production abilities in American Sign Language (ASL). Emphasis will be on recognition and demonstration of more sophisticated grammatical features of ASL with focus on increasing fluency and accuracy. The primary components of this course will be to practice what students are learning in this language class including, vocabulary development, grammatical features, conversational and communication skills, and cultural awareness. Speech will not be permitted in the classroom; communication will be in American Sign Language. When possible, classroom instruction will be augmented with guest speakers and videos. Class attendance and outside practice with other people who know or are studying ASL are essential in this course. Prerequisite: Enforced Prerequisite at Enrollment: CSD 318

Changes Effective Spring 2024:

- Change Description
- Add BA

DANCE 370: Anatomy and Physiology for Performers (3 Credits) (GN)

Old Listing Effective Through Fall 2023:

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 depth 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.

Prerequisite: Enforced Prerequisite at Enrollment: DANCE 100 or THEA 100 or THEA 105 or THEA 112

Changes Effective Spring 2024:

- Change Prerequisites

DS 300: Privacy and Security for Data Sciences (3 Credits)

Old Listing Effective Through Fall 2023:

The course provides student with the knowledge and skills to analyze and implement protection strategies for data privacy and security.

Prerequisite: Enforced Prerequisite at Enrollment: DS 220

Changes Effective Spring 2024:

- Change Description
- Change Prerequisites

DS 310: Machine Learning for Data Analytics (3 Credits)

Old Listing Effective Through Fall 2023:

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.

Prerequisite: Enforced Prerequisites at Enrollment: (CMPSC 121 or CMPSC 131) and (STAT/MATH 318 or STAT/MATH 414 or STAT/MATH 418)

Changes Effective Spring 2024:

- Prerequisite
- Add Recommended Preparation

DS 330: Visual Analytics for Data Sciences (3 Credits)

Old Listing Effective Through Fall 2023:

The course introduces visual analytics methods and techniques that are designed to support human analytical reasoning with data. DS 330 Visual Analytics for Data Sciences (3) Visual analytics is the science of combining interactive visual interfaces and information visualization techniques with automatic algorithms to support analytical reasoning through human-computer interaction. People use visual analytics tools and techniques to synthesize information and derive insight from massive, dynamic, ambiguous, and often conflicting data, and to communicate their findings effectively for decision-making. This course will serve as an introduction to the science and technology of visual analytics and will include lectures on both theoretical foundations and application methodologies. The goals of this course are for students to (1) develop a comprehensive understanding of this emerging, multidisciplinary field, and (2) apply that understanding toward a focused research problem in a real-world application or a domain of personal interest.

Prerequisite: Enforced Prerequisite at Enrollment: DS 220

Changes Effective Spring 2024:

- Prerequisites

DS 440: Data Sciences Capstone Course (3 Credits)

Old Listing Effective Through Fall 2023:

This course provides a data sciences problem-solving experience, addressing realistic data science dilemmas for which solutions require teamwork and collaboration.

Prerequisite: Enforced Prerequisite at Enrollment: DS 220; Recommended Preparation: DS 310 or CMPSC 448

Changes Effective Spring 2024:

- Change Description
- Change Prerequisites
- Add Concurrent

ECE 453: Parent Involvement in Home, Center, and Classroom Instruction (2-3 Credits)

Old Listing Effective Through Fall 2023:

Parent Involvement, programs, and methodologies that strengthen bonds between home and community for educators of children, N-12.

Changes Effective Spring 2024:

- Change Number
- Change Title
- Change Credits
- Change Description
- Add Prerequisites

EE 310: Electronic Circuit Design I (4 Credits)

Old Listing Effective Through Fall 2023:

Properties of fundamental electronic devices, analysis of DC, AC small-signal and nonlinear behavior, analog and digital circuit design applications.

Prerequisite: Enforced Prerequisite at Enrollment: C or better in EE 210 or C or better in EE 315

Changes Effective Spring 2024:

- Change Description
- Change Prerequisites

EE 314: Signals and Circuits II (3 Credits)

Old Listing Effective Through Fall 2023:

Circuit analysis including op-amps, and ideal transformers; one/two port network models; three-phase and industrial loads; engineering professionalism.

Changes Effective Spring 2024:

- Change Prerequisites

EE 485: Energy Systems and Conversion (3 Credits)

Old Listing Effective Through Fall 2023:

Overview of energy alternatives available, and study of theory of operation and models of major energy conversion devices. EE 485 Energy Systems and Conversion (3) The course is designed to give students an overview of available energy alternatives, and to study the fundamental theory of operation and system models for major energy conversion devices. The topics covered give students the tools to assess the viability of various energy options, their applications, and their impact on the environment. Various forms of raw energy sources used in powering conventional electric generating plants such as coal, natural gas, oil, and uranium will be studied, along with worldwide distribution and reserves. The analytical tools for determining quantities of energy that could be extracted from the wind, water falls, and solar energy sources using practical devices will be presented in the course as well as various case studies. The state of the art in energy storage technology and its impact on electrical vehicle range will be presented in the first half of the semester. The second half of the semester's devoted to studying the theoretical fundamentals and applications of major energy conversion devices. Magnetic circuits covers the electrical circuit model and analog for studying energy transfer involving magnetic systems. The link to a direct application – power transformers is established, and then to rotating magnetic machines in general. The poly-phase AC induction motor circuit model, energy flow, and selection for various load types will be covered. Modern speed control techniques using inverters will also be covered. The principles of operation of the synchronous energy converter will be explored and its unique features. The power angle characteristics and its relationship to stability of a power system will be covered. Presentation on theory and applications of classical DC motors and generators, and the newer permanent magnet (PM) machines with their superior performance characteristics and energy density will conclude the semester.

Changes Effective Spring 2024:

- Change Prerequisites
- Change Description
- Add Corequisites

EET 312: Electric Transients (4 Credits)**Old Listing Effective Through Fall 2023:**

EET 312 Electric Transients (4) This course is designed to provide students with a strong foundation in transient circuit analysis in addition to introduction to signals and systems. The primary objective of the course is to reinforce continuous-time system fundamentals in order to prepare the students for more advanced work in a broad range of areas including communications, control, signal processing and image processing. The topics covered in this course include: Applied differential equations; Transient analysis of RC, RL, and RLC circuits, using differential equations; Complex frequency; Network functions; Bode plots and frequency response; Filter networks and resonant circuits; Laplace transform pairs and their applications in circuit analysis; Fourier analysis techniques and their applications in circuit analysis; State-variable circuit analysis. This course is a required course in the Electrical Engineering Technology BS curriculum and is intended to be taken by students who have completed their first circuits course requirements.

Prerequisite: Enforced Prerequisite at Enrollment: EET 311 or EE 314 or EE 315

Concurrent: Enforced Concurrent at Enrollment: MATH 141 and (PHYS 151 or PHYS 212 or PHYS 251)

Changes Effective Spring 2024:

- Change Description
- Change Prerequisites

EET 402: High-Frequency Circuit Design (4 Credits)**Old Listing Effective Through Fall 2023:**

This course provides students in Electrical Engineering Technology with fundamentals of high frequency (RF and microwave) circuit design concepts. The main objective is that students gain familiarity with the high frequency circuits design topics including but not limited to: Limitations of lumped elements at high frequencies, parasitic effects, transmission line and distributed circuits, Smith Chart, impedance matching resonators, and filters, scattering parameters, multiport networks, power divider and combiners, directional couplers, and RF and microwave circuit modeling through computer aided design (CAD). The lab portion of the course provides the students with the opportunity to learn the operation of high frequency test equipment, such as network analyzer and spectrum analyzer, and be able to build and test high frequency and frequency and transmission line based circuits. The course topics are supported by weekly CAD or experimental labs.

Prerequisite: Enforced Prerequisite at Enrollment: EET 312

Changes Effective Spring 2024:

- Change Description
- Change Prerequisites

EGEE 102: Energy Conservation for Environmental Protection (3 Credits) (BA)**Old Listing Effective Through Fall 2023:**

Exposure to energy efficiency in day-to-day life to save money and energy, and thereby protect the environment. EGEE 102/EGEE 102 Energy Conservation for Environmental Protection (3) (GN)(BA) This course meets the Bachelor of Arts degree requirements. Energy is a vital component of modern society. Much of the general population believes that the energy sources we depend on are perpetual. While people believe

that energy use is the culprit for environmental damage, they are not aware of the methods and principles by which energy conversion devices operate. This general education course provides students with necessary knowledge and information on the main operating principles of devices/appliances that are in common use and information on which to make the right decision in selecting the most energy efficient and economical choice. These devices are day-to-day appliances such as refrigerators, washers and dryers, ovens, etc., and home heating or cooling and transportation choices. The course also provides necessary information on heating furnaces, insulation, doors and windows, lighting, and air conditioning principles. The objective of the course is to expose students to energy efficiency in day to day life in order to save money and energy and thereby protect the environment. This education is very important for all college students to turn them into environmentally-responsible individuals of this Global Village. The course entails various simple but important group-activities/projects to reinforce the information taught through formal lectures. This is not meant to be a laboratory course or a research project. The group activities include conducting a set of experiments and/or gathering and analyzing the data informally (at home) and formally presenting the observations to their peers both in writing and orally. Examples of group activities (fun) are: 1) conducting a home energy audit while walking around a house, apartment, trailer, etc. and taking notes on the cracks openings, caulking condition, insulating materials used, data on heating system, windows etc., and suggesting specific ways to conserve energy in the residence and 2) Energy usage analysis- involves analysis of home utility bills and energy consumption patterns and costs related to those for a year. Student performance will be evaluated continuously through group activities, one mid-term exam, class participation and a final examination. Collaborative-activities are used in lieu of homework assignments. This course is a stand-alone General-Education course. The course is currently offered every Fall and Spring semesters with a total target enrollment of approximately 40 students per semester.

Changes Effective Spring 2024:

- Change Description
- Add GN

ENGL 183Z: Adventure Literature (3-4.5 Credits: Maximum of 12 Credits)**Old listing effective through Fall 2023:**

Adventure Literature (ENG 183Z) students not only read Thoreau, but like him, they travel to the mountains, the river, or the seashore; they hike, climb, and/or kayak; they interview residents with a stake in the area; and they synthesize their experiences through writing. In this course, students analyze works of fiction, poetry, and nonfiction (including scientific and historical texts) that interrogate human relationships with a specific natural environment or region. As part of the course, students visit the region that inspires that literature they explore its wild places on foot and/or by water, and meet authors, activists, and experts invested in its continued legacy. The course combines physical adventure with intellectual rigor; students of all majors will hone their writing and close reading abilities, enhance their analytical and integrative thinking skills, and gain unique insight into diverse US values, traditions, beliefs, and customs rooted in place and environmental practice. This linked course is listed concurrently and must be taken with KINES 1Z/RPTM 1Z (Outdoor Pursuits) in the same semester.

Changes Effective Spring 2024:

- Change Course Number
- Change Description
- Remove General Education Linked Attribute

ENGL 215: Introduction to Article Writing (3 Credits) (BA)
Old Listing Effective Through Fall 2023:

Written exercises in, and a study of, the principles of article writing; practice in the writing of specific articles.

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description

ETI 435: Enterprise Analytics (3 Credits)
Old Listing Effective Through Fall 2023:

Analytics and big data, enabling analytics through information technology, ROI in analytics, leveraging proprietary data for analytical advantage, analytics on the web, analytics of online engagement, applying analytics at production scale, predictive analytics in the cloud, analytical technology and the business user, using analytics for improved organization performance, organizing analysts, engaging analytical talent, analytics governance, and building a global analytical capability, and analytics case studies in healthcare, manufacturing, HR, financial services, etc.

Changes Effective Spring 2024:

- Change Prerequisites

FDSC 417: Food Laws and Regulations (3 Credits)
Old Listing Effective Through Fall 2023:

This course provides a perspective to the principles and practice of food law and regulation as they impact the work of a food scientist. Food law will be discussed with reference to the roles of politics, culture, ethics (including social justice issues), science and business. The learning approach to this course uses case studies, problem solving, class discussions, and review of current topics. While some examples will be globally relevant, the focus of the course is on the regulation of food in the US.

Prerequisite: FDSC 200 and FDSC 201 and 6 credits of 400-level FDSC courses

Changes Effective Spring 2024:

- Gen Ed Recertification
- Description

FDSC 450: Food Innovation and Product Design (3 Credits)
Old Listing Effective Through Fall 2023:

This course provides upper-level undergraduate students in the Food Science major with project-based learning experience in food innovation and product design. Working in small groups, students will use their foundational and technical knowledge in food science to address a new product challenge of interest to the food industry sponsor or an equivalent client. Student groups will complete their new product design experience based on one of the challenges provided. They will design and produce an actual new product prototype that will be evaluated by the course instructor, industry sponsor and qualified individuals as

appropriate. While a large percentage of the work will be performed in a laboratory setting (students will spend an average of 3 hours/week in laboratory engaged in product design-focused projects assigned by company sponsors in the Department of Food Science Wet Pilot Plant), all students enrolled in FDSC 450 will also meet as a group with the course instructor twice per week (two 50 min session). Weekly discussion topics will address themes such as project and team management, market trends, effective team work, concept and prototype development, experimental design, recipe management and shelf life as well as what it is like to work in product development in the food industry. Final project reports are due during finals week.

Prerequisite: Prerequisite: FDSC 200 and FDSC 201 and 6 credits of 400-level courses

Changes Effective Spring 2024:

- Change Description
- Add Prerequisites
- Add Recommended Preparation

GD 210: User Interface Design and Prototyping (3 Credits)
Old Listing Effective Through Fall 2023:

Students in this course will apply knowledge in User Interface (UI) design and practice designing and prototyping compelling visual interfaces for multiple platforms – from websites to physical spaces to the nuanced interactions in mobile and wearable environments. The relationship of context to concept will be evaluated and applied, with emphasis placed upon designing for desktop and mobile environments through project-based learning and critique. Knowledge acquired in GD 110: User Experience Design: Concepts & Principals will allow students to understand user behavior while applying technical knowledge in learning design systems and standards for desktop and mobile devices. Students will learn user interface design software to increase design capabilities, as well as prototyping software to further interaction design skill sets.

Changes Effective Spring 2024:

- Add GA

GEOG 487: Environmental Applications of GIS (3 Credits) (BA)
Old Listing Effective Through Fall 2023:

Real-world applications of GIS and spatial analysis to investigate a variety of current environmental issues. GEOG 487 Environmental Applications of GIS (3)GEOG 487 is an elective course in the Post baccalaureate Certificate Program in GIS and the Master of Geographic Information Systems (MGIS) degree program, both of which are offered exclusively through Penn State's World Campus. GEOG 487 consists of projects, associated readings, quizzes, and discussions related to environmental applications of GIS. Students are exposed to a variety of concepts, tools, data sources and formats, and environmental issues they are likely to encounter in a career involving GIS and environmental management. Like other courses in the GIS Certificate and MGIS programs GEOG 487 is offered in compressed 10-week terms that require a minimum of 8-12 hours of student activity each week. It is offered quarterly (starting in January, April, July, and October). GEOG 487 does not count toward the requirements of the resident B.A., B.S., M.S. or Ph.D. degrees in Geography, except by explicit permission of the student's graduate advisor and the Department of Geography's graduate officer.

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description
- Change Prerequisites

**GER 100: German Culture and Civilization (3 Credits) (BA) (IL) (GH)
Old Listing Effective Through Fall 2023:**

Culture and civilization of the German people from the Germanic migrations to the Nazi period. Conducted in English. GER 100 German Culture and Civilization (3) (GH;IL)(BA) This course meets the Bachelor of Arts degree requirements. In German 100, students examine the ethical basis for decision-making of representative thinkers and periods in German history. The course begins by looking at the warrior ethos that pervades early Germanic literature, proceeds to examine successive changes in ethics brought on by Christianization, the Reformation, and the Enlightenment. The course ends by looking at the ethics of power advocated by Nietzsche and the racialist ideology of Nazism. The course will also examine changes in aesthetic values, as represented by the art of Durer and the Expressionists, the literature of the Storm-and-Stress movement and Kafka, the music and theater of Wagnerian opera and the film of the Expressionists and Leni Riefenstahl. Finally, the nettlesome issue of German national identity will be addressed through the perspective of historical developments since the time of Charlemagne. German 100 is linked closely to German 200. German 100 concentrates on German culture and civilization up to the Nazi period. German 200 concentrates on German culture and civilization since the Nazi period. German/Russian 143 addresses aspects of Nazism in greater depth than does German 100. The course meets three times per week, including fifty-minute lectures on Monday and Friday and a discussion section on Wednesday. The total enrollment is limited to approximately 180 students and the discussion sections have no more than 27 students each. When taught in the summer, the total enrollment for the class is less than fifty. Assessment is based on three examinations with an essay component, one short paper, and participation in classroom discussions, and attendance. German 100 may not be applied toward the requirements of a German major or a German minor. It may be used for the General Education humanities requirement, for the General Education Intercultural/International competence requirement, or for a B.A. humanities requirement.

Changes Effective Spring 2024:

- Change Description

**HDFS 101S: "Helping People:" Introduction to Understanding Social Problems & How to Help (3 Credits) (GHA) (GS) (FYS)
Old Listing Effective Through Fall 2023:**

This inquiry-based course introduces students to the dynamic world of helping through the exploration of "hot topics"/pressing social issues. Exploration will highlight core themes of lifespan human development, lives in context, and the ethics of care as well as integrate how to use concept maps to understand complex social issues and identify policies and interventions to help. By the end of the semester, students should develop the skills and knowledge needed to independently learn about and find ways to help address the pressing social issues that interest them. Additionally, students are guided to engage and develop their own next steps for how to help address the issues they feel most passionate about – whether that's as an engaged citizen, volunteer, or helping professional. Students will be guided to think about and explore their interests and opportunities for engagement and how these connect to undergraduate educational and engaged learning opportunities.

Throughout, students will be introduced to and guided to explore of to leverage learning and helping opportunities, tools, and resources available at Penn State to get the most out of their undergraduate experience.

Prerequisite: Enforced Corequisite At Enrollment: PSU 14

Changes Effective Spring 2024:

- Add US/IL Attribute
- Title
- Description

**HDFS 210Z: Ethnicity, Health and Aging
Old listing effective through Fall 2023:**

The study of health and aging among persons from diverse race populations is not only the study of how people of different racial groups age, but also the contexts in which these populations function physically, psychologically, and socially. This course will allow students to develop a better understanding of the aging process across racial/ethnic populations and how differences in adult and aging development can be affected by social structures. Furthermore, the course is designed to encourage students to transfer learned material into modifying existing or developing new practical solutions to reduce aging and health disparities. This course will cover multiple areas, such as: (1) Overview of the concepts regarding race, ethnicity, and culture; (2) Aging demographics; (3) Research methods in aging and racially diverse populations; (4) Health Disparities (e.g., physical and mental health); (5) Family, work, and retirement; (6) Aging in neighborhoods; (7) Policy. In-class lectures will be provided to cover the material. Students will be asked to complete assignments, exams, and a final project. HDFS 210Z is a linked course, students may choose to link to either SOC 210Z or SOC 211Z

Changes Effective Spring 2024:

- Change Course Number
- Change Description
- Remove General Education Linked Attribute

**HIST 112: Introduction to Public History (3 Credits) (US)
Old Listing Effective Through Fall 2023:**

Introduction to Public History lays a broad foundation for history-based careers in museums, historic site management, foundations, and government services. Practicing as a historian outside of a classroom opens worlds of very diverse professional opportunities. This course is designed to introduce students to that wide world and equip them to experiment with it. It teaches theories of public history practice, along with basic approaches and perspectives on audience development, collection management, interpretation, and organizational management and finance that all public historians need to know to succeed. The course will consider the past and future of the field. Students should encounter public history practice; there are various ways to make that happen, including meeting practicing public historians through field trips and/or in class, preparing a grant application, and presenting a modest Public History project in class. Public history offers opportunities to students in communication, media, management, finance/accounting, and education, as well as history. This course is the first stage of a public history emphasis or minor (when available) but also stands alone as an introduction to a growing and promising field of work for students drawn

to history but seeking professional opportunities beyond graduate work and teaching.

Changes Effective Spring 2024:

- Change Abbreviated Title
- Change Description
- Remove Prerequisites

HM 203: Hospitality Professional Development Seminar (1 Credit)
Old Listing Effective Through Fall 2023:

The purpose of this course is to provide students with professional development preparation early in the curriculum. This course will help students obtain quality work experience during their college career to best prepare them for post-graduate employment. In particular, this course is designed to prepare students for meeting the major's work experience requirement. Meaningful work experience serves as a complement to classroom learning and provides the foundation for securing employment upon graduation. This course will help students understand the connection between college work experience and full-time careers and will impart strategies for conducting a successful job search and making the most out of these work opportunities. The class will include lectures, discussions, experiential exercises, guest lectures, and professional development assignments.

Prerequisite: Enforced Prerequisite at Enrollment: HM 201

Changes Effective Spring 2024:

- Change Prerequisites

HM 271: Hospitality Information Technology Fundamentals (2 Credits)

Old Listing Effective Through Fall 2023:

This course introduces students to the technology used in the hospitality industry and to technology concepts. To prepare students for success in the industry, the class is designed to allow students to possess a working knowledge of technology and how to best use this technology to improve the guest experience and increase an organization's performance.

Prerequisite: Enforced Prerequisite or Concurrent at Enrollment: HM 201

Changes Effective Spring 2024:

- Change Prerequisites

HM 272: Introduction to Worksheet-Based Analysis and Modeling for Managerial Decision Making (2 Credits)

Old Listing Effective Through Fall 2023:

The ability to use and apply MS Excel is a vital competency for SHM graduates to have. Companies expect it for career success and dependency on one's ability to use Excel in solving financial and managerial problems. The advisory board of SHM has identified the students' ability to use and apply MS Excel as a competency required by many hospitality companies. In addition, the use of worksheets and MS Excel is required in such diverse classes as hotel and food service management, marketing, revenue management, finance, real estate, and entrepreneurship. The course involves a lecture on the functionality of the software as well as hands-on, in-class learning exercises illustrating the topics presented in the lecture. Case studies will enable students

to explore and analyze a variety of hospitality concepts on a common worksheet platform.

Concurrent: Enforced Concurrent: HM 201

Changes Effective Spring 2024:

- Remove Concurrent
- Add Prerequisites

HM 280: Fundamentals of Hotel and Accommodations Management (3 Credits)

Old Listing Effective Through Fall 2023:

Students will explore the typical ownership and management structures of various types of hotels. Ownership discussions include the various types of ownership entities from sole proprietorships to real estate investment trusts and large institutional owners. The role of the owner is discussed to enable students to understand how ownership entities effect their role as a hotel manager. Students will learn about franchise agreements, brand affiliations, and management companies. Students will learn how key operating departments of a typical hotel work, how the departments interrelate, work with one another to deliver exceptional guest service and profits. Discussions of the key operating departments in a hotel to include front office, housekeeping and laundry, engineering, food and beverage, and safety and security. Students will learn the key performance metrics and terminology related to the operation of the various hotel departments. Students will apply linear programming to optimize staffing and labor scheduling. Students will be provided tours of the primary operating departments, housekeeping and laundry, food and beverage, maintenance, and front office, to experience and observe operations. Students will have the opportunity to enhance their classroom learnings with observation of functioning operations. Students will explore the growth in the home sharing sector and its effect on the hotel business. Other trends and current events will be presented and discussed regarding their short- and long-term impact on the hotel business.

Prerequisite: Enforced Prerequisite at Enrollment: HM 201

Changes Effective Spring 2024:

- Change Prerequisites

HM 330: Food Production and Service Management (3 Credits)

Old Listing Effective Through Fall 2023:

This course is designed to apply management principles to foodservice production and service in a lab environment. HM 330 stresses the integration of management principles acquired in prior classes, including planning, organizing, controlling, staffing, and leading. Students will rotate in management and staff positions for the quantity production of quality food. The course draws from the students' theoretical background in accounting, management, nutrition, food production and sanitation. HM 330 integrates this content into the daily operation of a campus foodservice facility as a living laboratory.

Prerequisite: Enforced Prerequisite at Enrollment: (NUTR 119 or NUTR 320) and a grade of C or better in HM 230

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Prerequisites

HM 344: Social Media Marketing for Hospitality (3 Credits)
Old Listing Effective Through Fall 2023:

This class in social media marketing explores the growing popularity of using digital technologies to reach hospitality guests. The emphasis of the class is on expanding student's working knowledge on the four zones of social media (community, publishing, entertainment and commerce) within the context of hospitality. Students explore how social media can be employed to build hospitality brands, conduct business, handle guest complaints, drive sales, forge and maintain guest relationships. Although strategies for executing successful social media campaigns is taught, an over emphasis on any one specific social network is not.

Prerequisite: Enforced Prerequisite at Enrollment: a grade of C or better required in HM 201

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title,
- Change Description
- Change Prerequisites

HM 355: Legal Aspects of the Hospitality Industry (3 Credits)
Old Listing Effective Through Fall 2023:

Specialized applications of law to the hospitality industry. HM 355 Legal Aspects of the Hospitality Industry (3) Laws, courts, and more generally the legal system together constitute an integral feature of the environment within which the hospitality industry operates. The objective of this course is to acquaint students with the application of law to hotels, restaurants, and institutional settings. A hospitality manager who understands the law can prevent many legal problems from occurring, including preventing injuries that may lead to lawsuits. Main topics in this course typically include: types of law, judicial structure and trial procedures; conduct of legal research, including use of Web resources; legal duties of innkeepers and guests; negligence and other torts; contract law; civil rights and public accommodations, especially protections from discrimination; guests' property; regulation and licensing; employment law, especially protections from discrimination; casinos and the law; and food and alcohol service liability.

Prerequisite: Enforced Prerequisite or Concurrent at Enrollment: HM 201

Changes Effective Spring 2024:

- Change Prerequisites

HM 390: Corporate Social Responsibility in Hospitality (3 Credits)
Old Listing Effective Through Fall 2023:

This course introduces students to issues of corporate social responsibility. The course is taught from both general business and hospitality perspectives. Specifically, this course addresses the general historical development of CSR along with hospitality cases, fundamental concepts of CSR, different arguments for CSR, major frameworks of CSR, sustainability (environmental) issues, and hospitality cases and applications. The course will provide an opportunity to students for

analyze the CSR programs of major hospitality companies by applying the concepts and practices of CSR discussed in the course.

Prerequisite: Enforced Prerequisite at Enrollment: a grade of C or better required in HM 201

Changes Effective Spring 2024:

- Change Prerequisites

HM 411: Beverage Management and Wine Selection (3 Credits)
Old Listing Effective Through Fall 2023:

Management issues in beverage service and products. Students taste wines, brews, and distilled spirits.

Changes Effective Spring 2024:

- Change Course Number
- Change Title
- Change Abbreviated Title
- Change Description

HM 430: Advanced Food Production and Service Management (3 Credits)
Old Listing Effective Through Fall 2023:

Simulation and application of technical, conceptual, interpersonal skills. Emphasis on group dynamics; improvement in managerial skills; management team functions. HM 430 Advanced Food Production and Service Management (3) This course is designed to give students an opportunity to gain experience in the wide range of skills and techniques that are normally associated with the duties of a hospitality manager. The skills and techniques that will be emphasized include, but are not limited to, duties involved in the planning, execution and evaluation of full-service, theme oriented ala carte dining. Students are expected to form a marketable theme and then develop, produce and evaluate an authentic dining experience. A successful dining experience is contingent upon both guest satisfaction and the achievement of financial goals. Main topics typically include: * Research, describe and produce an authentic restaurant environment from a selected theme * Demonstration of technical responsibilities involved in the development, production and evaluation of a wide range of food service systems including: sales, menu planning, recipe development and evaluation, pricing, purchasing, facilities management, personnel management and financial management * Operational needs and potential problems in a food and beverage operation during production and service * Timely and effective managerial problem identification and decision-making abilities * Interpersonal and teamwork skills both within a management team and with classmates as employees * Interaction with guests and evaluation of guests' dining experiences The course is a capstone management class in the foods sequence and is required of all Hospitality Management majors. Students must first complete the introductory food production course.

Prerequisite: Enforced Prerequisite at Enrollment: A grade of C or better in HM 330

Changes Effective Spring 2024:

- Change Number
- Change Abbreviated Title

- Change Description
- Change Prerequisites

HM 442: Hospitality Marketing (3 Credits)

Old Listing Effective Through Fall 2023:

Understanding the customer is the key to a successful hospitality business. This course is an overview of the principles of services marketing applied to a specific industry. Particular focus will be in understanding the importance of service quality and customer requirements aligning service design and standards, delivering and performing service, managing service promises and understanding the impact of marketing strategies on the company's bottom line.

Changes Effective Spring 2024:

- Change Number
- Change Abbreviated Title
- Change Description
- Add Prerequisites

HM 482: Hospitality Real Estate (3 Credits)

Old Listing Effective Through Fall 2023:

Ultimately, hospitality enterprises are location-based businesses requiring the deployment of real estate. To understand this important concept, hospitality students need to understand real estate in a hospitality industry environment. Students in HM 482 complete projects including feasibility studies for proposed hotels where they evaluate the competition, project hotel supply by future year, including evaluating and quantifying future supply additions. Then, students project hotel demand by future year by market segment, including estimating growth and any induced demand, and they calculate fair share by future year for proposed hotels. Students estimate penetration ratios by future year by market segment for proposed hotels, until stabilization, calculate occupancy by future year for proposed hotels, until stabilization, and estimate Average Daily Rate (ADR) by future year for proposed hotels, including estimating inflation. Students develop detailed financial projections by future year for proposed hotels, estimate market value for proposed hotels by applying the Income Approach, Cost Approach, and Sales Comparison Approach, conduct a Reconciliation to conclude a single, final Market Value Estimate, and compare the estimated market value of proposed hotels to the estimated development cost to conclude feasibility.

Prerequisite: Enforced Prerequisite at Enrollment: A grade of C or better in HM 201

Concurrent Courses: HM 336

Changes Effective Spring 2024:

- Change Prerequisites

HM 490: Strategic Hospitality Management (3 Credits)

Old Listing Effective Through Fall 2023:

The purpose of this capstone course is to integrate previous course work to enhance students' analytical and critical thinking skills, managerial decision making skills, and an awareness of emerging trends in the hospitality industry. In particular, this course will integrate content in the areas of hospitality marketing, human resource management, organizational behavior, finance, accounting, and hospitality operations. The course offers a blend of theory and practical application of models of competitive strategy. The central questions that drive the course are:

'How do hospitality companies make strategic decisions, and how does strategy enhance the effectiveness of hospitality enterprises?' During the first half of the semester, the course will focus on the model of strategy formulation, from developing company vision and mission and setting objectives, through conducting an environmental scan, SWOT analysis, strategic analysis, and strategic choice. During the second half of the course, the focus will shift to corporate social responsibility, ethics, international strategic decision making, global hospitality management, and emerging trends in the industry.

Prerequisite: Enforced Prerequisite at Enrollment: HM 442 and a grade of C or better in HM 336 and HM 365

Changes Effective Spring 2024:

- Change Prerequisites

HPA 210: Health Care Payment (3 Credits)

Old Listing Effective Through Fall 2023:

This course covers basic concepts and issues related to health insurance and payment for health care providers. This course covers both public insurance programs and private health insurance products including managed care approaches to the financing and delivery of healthcare services. Within public and private insurance schemes, students will explore reimbursement and payment methodologies. In doing so the course will evaluate multiple dimensions of health care cost and payment, with an emphasis on how payment systems influence provider organization, behavior and performance. Participants will review sources and uses of health care dollars, and examine how these have changed in recent years as well as further changes that are likely as a result of the 2010 health care reform law associated regulations. Within insurance schemes, students will explore reimbursement and payment methodologies. Students will examine forms processes practices and the roles of health information professionals. Students will discuss concepts in insurance, third-party and prospective payments and managed care organizations. Finally this course will examine various stakeholder points of view on health care finance; and assess how health care finance can drive changes in health care delivery and can lead to different experiences and outcomes for both providers and patients.

Prerequisite: Enforced Prerequisite at Enrollment: ECON 102 or HPA 101

Changes Effective Spring 2024:

- Change Description

IET 333: Engineering Economics for Technologists (2 Credits)

Old Listing Effective Through Fall 2023:

Fundamentals of engineering economics; equivalence and rate of return analysis; replacement models; depreciation and tax considerations; and economic decision making for technologists.

Prerequisite: Enforced Prerequisite at Enrollment: (MATH 22 and MATH 26) or MATH 40 or MATH 41

Changes Effective Spring 2024:

- Prerequisites

IST 240: Introduction to Computer Languages (3 Credits)

Old Listing Effective Through Fall 2023:

Introduction to the specification and application of languages and language paradigms that interact with computers. IST 230 is

recommended to be taken before or at the same time as IST 240. IST 240 is one of two courses added to the three core courses for the associate degree program to form the core courses for the baccalaureate degree program in Information Sciences and Technology. The primary goal of this course is to study the foundations underlying the design, specification and use of a wide variety of language paradigms used to interact with computers. The following details the content of the course: (1) nature of languages; (2) elements of languages; (3) classification of languages; (4) formal descriptions of languages; (5) data and types; (6) names and bindings; (7) control structures; (8) language processors; and (9) study experiences. Student evaluation may be accomplished by means of assignments, examinations, and possibly a project. This course will most likely involve Web-based course material and will therefore require student access to computers and the Web. Although other existing courses are similar to IST 240 in content, none of those courses fit the objective of this course and of this program.

Changes Effective Spring 2024:

- Change Descriptions
- Change Prerequisites

IST 242: Intermediate & Object-Oriented Application Development (3 Credits)

Old Listing Effective Through Fall 2023:

Intermediate application development including algorithms, data structures, and object-oriented concepts. IST 242 Intermediate & Object-Oriented Application Development (3) This is a second course in application development. It will focus on the intermediate knowledge needed to create applications that use high level programming languages, combining original code with existing code libraries and application programming interfaces (APIs). The perspective will be of application development that takes place within a human and organizational context; in this sense data structures will be construed as representations of organizational entities and information, and algorithms as a reflection of human and organizational processes and activity. Students will also learn about common application architectures and design patterns. This is a hands-on, practical course designed for IST design and development option undergraduate students and others as an elective.

Changes Effective Spring 2024:

- Change Prerequisites

IST 261: Application Development Design Studio I (3 Credits)

Old Listing Effective Through Fall 2023:

Introductory design and development studio course for IST and SRA students. IST 261 Application Development Design Studio I (3) This studio course will provide opportunities for students to practice the technical skills acquired in their foundation application design and development courses, specifically, in IST 140 and IST 242. The course will follow the general format of experiential studios in the arts and architecture. It will be primarily problem-based and project oriented. Peer and instructor design critiques will be the major feedback and assessment mechanisms. Students in the IST Software Design Studios will be expected to complete deliverables in each phase of the systems development lifecycle (i.e. problem definition, requirements analysis, design, development, test) regardless of the development paradigm employed (plan-based, agile, etc). A key objective of this design studio will be to introduce students to the challenges faced in different application design and development activities before exposing them

to specific techniques to manage these challenges in upper-division courses. Projects may be undertaken by individuals, pairs, or larger groups but each studio participant will be responsible for producing significant individual project deliverables. Project ideas may come from the student or from the instructor; however, projects related to students' other course deliverables will require the agreement of both instructors. Students will be required to maintain a design and development journal. This journal will be the analog of an engineering notebook or artist's sketchbook and should contain a running account of the students design and development ideas, explorations, rationale, and other notes. The IST design and development studios are a forum for serious students to engage with the concepts, process, tools, and materials used to envision and build software applications. Both collaboration and individual performance will be emphasized, as will experimentation, risk-taking, and enthusiasm for the process of designing and building working software applications. Students will be expected to improvise and then respond constructively to feedback from instructors and peers.

Changes Effective Spring 2024:

- Change Prerequisites

IST 331: Foundations of Human-Centered Design (3 Credits)

Old Listing Effective Through Fall 2023:

Interdisciplinary survey of topics and methods related to the human-centered design use and usability of information systems. IST 331 Foundations of Human-Centered Design: User and System Principles (3) This course provides a focused introduction to one of the most complicated parts of information systems design: users and the contexts in which they live, work, and play. The course provides a balance between theory and practice, which are tightly intertwined in this area. Students will learn how to use social science theories about human capabilities and group behavior to predict whether an information system will be usable and useful, and they will learn about the opportunities and challenges that are associated with a wide range of emerging technologies. Students will also gain skills in designing and evaluating information systems that meet the needs of a target audience. Because the information technology design space evolves rapidly, much of the technology-related content covered in this course will evolve from year to year; however the focus throughout will be understanding and responding to the needs, capabilities and preferences of the users of interactive information systems. The format of the class may include lectures, readings, in-class or online discussions, projects, or case studies. Assessment of student performance may include short assignments, quizzes, exams, or in-depth projects.

Prerequisite: Enforced Prerequisite at Enrollment: C or better in IST 240 or IST 242

Changes Effective Spring 2024:

- Prerequisites

IT 1: Elementary Italian (4 Credits) (BA)

Old Listing Effective Through Fall 2023:

For beginners. Grammar, with reading and writing of simple Italian; oral and aural work stressed.

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description

IT 2: Elementary Italian (4 Credits) (BA)
Old Listing Effective Through Fall 2023:

Grammar and reading continued; oral and aural phrases progressively increased; composition. Prerequisite: IT 1

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description

IT 3: Intermediate Italian (4 Credits) (BA)
Old Listing Effective Through Fall 2023:

Advanced grammar; oral and written composition; reading of modern authors; Italian life and culture.

Prerequisite: IT 2

Changes Effective Spring 2024:

- Change Abbreviated Title
- Change Description

IT 10: Intensive Elementary Italian (6 Credits) (BA)
Old Listing Effective Through Fall 2023:

Intensive Italian basic reading, writing, listening, and speaking skills stressed. Lab. Equivalent to IT 001 and half of IT 002. IT 010 Intensive Elementary Italian (6)(BA) This course meets the Bachelor of Arts degree requirements. This course is intended for students with no experience of Italian. It provides an intensive language-learning environment in which to complete 6 credits of elementary Italian (equivalent to IT 001 and the first half of IT 002). Students receive an extensive introduction to Italian grammar, speech, and culture. Evaluation methods include a variety of written and oral exercises (presentations, compositions, quizzes, exams, etc.). All work is done in Italian. The course is offered once per year. Enrollment is limited to 18. The course can count toward the completion of the Italian minor. This course prepares students for IT 020, a continuation of elementary and intermediate Italian.

Changes Effective Spring 2024:

- Change Abbreviated Title
- Change Description

IT 131: Introduction to Italian American Culture (3 Credits) (US)
(GH)
Old Listing Effective Through Fall 2023:

Between 1870 and 1920 over five million Italians immigrated to the United States. Of those who came, about one-third returned to Italy. Those who remained, often joined by their families, left an indelible mark on the American cultural, political, artistic, educational and social landscape. This course provides an overview of Italian emigration to America in the 19th and 20th centuries and the conditions within the United States as a destination culture. Through a study of historical, sociological, literary, and cinematic texts, students will consider, among other topics: 19th Century Italy, the odyssey of immigration to and assimilation in the United States, and life in the ethnic neighborhood.

The course will also look at the Mafia, forms of prejudice, and ways Italians uniquely manifested their social values in labor unions, religion, and education in America. Upon successfully completing this course, students will have a solid grasp of how Italians, becoming Americans, contributed to the rich fabric of life in the United States.

Changes Effective Spring 2024:

- Change Description

IT 301: Pathways to Fluency (3 Credits)
Old Listing Effective Through Fall 2023:

For majors, minors, and others with adequate preparation; deepening of grammatical skills, integrated conversation, composition, and reading. IT 301 Pathways to Fluency (3) For majors, minors, others with adequate preparation, students in this course review grammatical skills through conversation, class debates, reading, and writing assignments based on contemporary cultural materials (web sites, music lyrics, newspaper and magazine articles, etc.) Prerequisite: IT 003. Evaluation methods include class participation, in class activities (both oral and written), composition, and exams.

Prerequisite: IT 003

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description
- Change Prerequisites

IT 310: Applied Advanced Conversation (3 Credits)
Old Listing Effective Through Fall 2023:

Focus on intensive oral communication practice, designed to provide students pursuing upper-level course work in Italian an opportunity to develop advanced intermediate speaking skills. Class time is dedicated to oral practice in small and large group discussions. Prerequisite: IT 3 or IT 20, or permission of program. Course counts toward Italian major and minor.

Prerequisite: IT3 or IT 20

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description
- Change Prerequisites
- Add BA

IT 415: Dante (3 Credits) (BA)
Old Listing Effective through Fall 2023:

Readings in the Divina Commedia and the related lesser works of Dante Alighieri.

Changes Effective Spring 2024:

- Change Description
- Add Prerequisites

IT 480: Italian Women Writers Through the Centuries (3 Credits)
Old Listing Effective Through Fall 2023:

Analysis of the works of women authors in their historical and literary contexts. IT 480 Italian Women Writers Through the Centuries (3) Italian women have been stereotyped as the "mamma" or grandmother who cooks, prays, and idolizes her sons. Such an image does not accommodate the wide variety of experiences, perspectives, and contributions of Italian women throughout history. This seminar will explore the writings of female authors from delimited historical periods (alternating among Renaissance, 19th and 20th Centuries). Depending on time period, genres will include autobiography, poetry, historical novel, drama, film, nonfiction. Throughout the course we will consider the political and social developments in Italy with an emphasis on issues of special relevance to women. As we approach each text, we will examine such questions as: the significance of its form; the author's use of language; the ways in which masculinity and femininity are constructed; intersections with the text's historical moment; the political, philosophical and/or theological questions posed by the text; the ways in which the text inserts or distances itself from the Italian literary canon; and the text's depictions, re-evaluations and uses of history. Through their journal assignments in class discussion, students will be encouraged to reflect upon the implications of course concepts in their own culture and historical moment. Evaluation methods include participation in class discussion, journal entries, short analysis papers, and a longer (8-10 page) research paper. In Italian. Prerequisite: any 300-level Italian course. This course is conducted in Italian and counts for the Italian major and minor. The ability to screen VHS and DVD videos is necessary. Enrollment is limited to 20, and the course will be offered at least once every four semesters.

Changes Effective Spring 2024:

- Change Title
- Abbreviated Title
- Description
- Prerequisites

IT 490: Dante in Translation (3 Credits) (BA)
Old Listing Effective through Fall 2023:

The reading of Dante's Divine Comedy and selected minor works.

Changes Effective Spring 2024:

- Change Abbreviated Title
- Description
- Prerequisites

LA 235N: Introduction to Public Humanities (3 Credits) (GA) (GH)
Old Listing Effective through Fall 2023:

This course introduces students to the ideas and skills that comprise "public humanities," with a focus on digital media tools. It aims to develop student understanding of how public humanities work can address present-day problems, fostering empathy within and building bridges between persons, groups, and communities. It offers hands-on training in three forms of digital media: documentary film, podcasting, and web publishing. Through honest and respectful engagement with a diverse range of ideas, perspectives, and experiences, students will develop creative and critical thinking and problem-solving skills by locating, analyzing and applying information in project formation and production. This course is cross-listed as COMM 235N.

Changes Effective Spring 2024:

- Change Number
- Change Title
- Change Abbreviated Title
- Change Description
- Cross List

LHR 305: Human Resources Fundamentals (3 Credits) (BA) (GS)
Old Listing Effective Through Fall 2023:

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 LHR students enroll, the final project requires students to apply the concepts learned concerning the HR function to their everyday lives, helping students to reflect on the difference HR processes can have on both the organization but equally important on the employee. As a Gen Ed course (GS), the course qualifies as a Bachelor of Arts (B.A.) course consistent with the B.A. Fields category.

Prerequisite: LHR 100

Changes Effective Spring 2024:

- Remove Prerequisites

LHR 452: Human Resources and Employment Relations in Tech (3 Credits)
Old Listing Effective Through Fall 2023:

Students will study the theory, practice, and controversies related to human resources and employment relations in the tech sector. This course will explore how organizations manage the people who produce technology and compare human resource management (HRM) practices in the tech sector to those from industries not based on knowledge resources. We further investigate the role organizational culture and leadership play and introduce students to the relevant public policy debates concerning the organization of work and HRM practices in tech. The course culminates in visits to a variety of U.S. tech companies and

meetings with tech employee representatives to build and extend the insights learned in the classroom.

Prerequisite: 9 credits in LER

Changes Effective Spring 2024:

- Add BA

LHR 475H: Labor in the Global Economy (3 Credits) (BA)
Old Listing Effective Through Fall 2023:

This course focuses on how the nature of work is changing in the global economy, and the implications for economic opportunity and inequality in both . LER 475H Labor in the Global Economy (3) This seminar focuses on how the nature of work is changing in the "new economy" and the implications for economic opportunity and inequality. Sections of the course examine: theoretical approaches to understanding contemporary process of labor restructuring, including globalization, rise of multinational corporations, and growth in global supply chains; case studies of restructuring processes; and innovative labor organizing initiatives at a local, regional and global scale. This course aims to develop a framework for understanding the nature of contemporary processes of economic restructuring and its impact on the world of work. Case studies will provide a deeper understanding of how broad macro-level changes in the nature of contemporary capitalism are mediated by a variety of technological, political, and socio-economic factors in particular industries and geographic contexts. The case studies section of the course will also examine business ethics and corporate social responsibility initiatives. Finally, an in-depth look at workers' responses to these changes at different scales (local, regional, global) will help deepen our understanding of the contested nature of workplace restructuring while exploring promising strategies for improving working conditions. This is a reading-intensive course dealing with the theoretical literature on rapid economic restructuring and how this is shaping work and employment.

Prerequisite: 6 credits of LHR and 6th semester standing

Changes Effective Spring 2024:

- Change Prerequisites

LING 1: The Study of Language (3 Credits) (US) (IL) (BA) (GS)
Old Listing Effective Through Fall 2023:

In this course, we survey essential topics in the study of language with a view toward providing an overview of the approaches, methods, and goals of linguistics. We examine fundamental questions like what are the origins of human language? How does language work? How do human languages differ and how are they alike? How do children learn languages? Why does language change? What is the link between language and culture? Why do people have such strong opinions about others' language use? What is the impact of language loss in human society? We will address these questions and others through readings, problems and discussion. The goal of this course is to provide evidence and analytical methods by which students can critically evaluate their own and other people's views of language. The course also focuses on helping students gain proficiency in the general skill of how to use data (in this case, qualitative language data), to make a well-supported scientific argument.

Changes Effective Spring 2024:

- Title
- Abbreviated Title

LING 402: Syntax I (3 Credits) (BA)
Old Listing Effective Through Fall 2023:

Principles of grammatical analysis in the generative framework; an overview of syntactic structures across languages. LING 402 Syntax I (3) (BA) This course meets the Bachelor of Arts degree requirements. The aim of this course is to provide students with the background needed to understand advances in modern generative syntactic theory and to encourage them to do creative and informed research in this area on English or other languages that they might know. The course provides a historical overview of the development of generative syntax. We explore in depth a number of topics that challenge any syntactic theory and we attempt to propose testable hypotheses concerning language structure.

Changes Effective Spring 2024:

- Add Prerequisites

LLED 400: Teaching Reading in the Elementary School (3 Credits)
Old Listing Effective Through Fall 2023:

Candidates learn how to teach in ways that support children's successful development uses Introduction to the reading program; acquaintance with materials and techniques; observations of reading instruction; correlation with human growth and development. LLED 400 Teaching Reading in the Elementary School (3) LLED 400 is intended to help teacher candidates become knowledgeable users of theory and about language, literacy and culture; and to think through instructional problems thoroughly, using multiple sources of information to experiment with alternative solutions.

Dealing specifically with reading, we recognize that text goes beyond print texts to include multimodal visual, auditory, digital, movement, and artifactual texts. In LLED 400, candidates learn to understand how children develop as readers and users of literacies in and out of school. Candidates learn how to teach in ways that support children's successful development and uses of multiple kinds of literacy, including reading. Literacy teaching is both an intellectual and practical matter in which teachers work with students in ways that recognize the complexities of language and its social uses, learning and its cultural contexts, and schooling as organizational phenomena. Children enter schools with multiple types of literacy knowledge and cultural experiences. Coming to understand these complexities requires the coordination of both theoretical awareness and applied knowledge. Candidates' practice is developed as they learn to address the puzzles children present as they construct their knowledge of language, literacy, and literature in various social situations. Developing practical strategies to teach literacy requires a dedication of head, hand, and heart to treat all people with dignity, acknowledging the contributions of all cultural groups and respecting diversity as it honors ideals of social justice. In LLED 400, teacher candidates develop a repertoire of organizational, instructional, and evaluative strategies that are based on research and best professional practices. Candidates work on projects independently and in collaborative groups. Content is presented by the instructor through a combination of lectures, weekly readings and reflections on readings, class discussion, activities and demonstrations, and viewing and analyzing video. Projects include an analysis of children as readers and curriculum planning. A field experience connected to LLED 400 and LLED 401 affords teacher candidates the opportunity to inquire about children's encounters with literacy in elementary grade classrooms. LLED 400 is part of a block of courses in a PSU teacher education program

that is unified by the basic set of principles supporting the development of a broader and more inclusive understanding of texts, children, and communities.

Prerequisite: 4th Semester standing

Corequisite: LLED 401, LLED 402, CI 460

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description
- Remove Corequisite

**LLED 401: Teaching Language arts in Elementary School (3 Credits)
Old Listing Effective Through Fall 2023:**

Principles, problems, materials, and techniques involved in teaching speaking, listening, writing, and reading in the elementary school. LLED 401 Teaching Language Arts in Elementary School (3) The purpose of LLED 401 is to acquaint teacher candidates with theories and practices of teaching writing. We also expect the roles which culture plays literacy practices, literature, identifications of "ability," and schooling; to learn how people function effectively in groups; and to a repertoire organizational, instructional, and evaluative strategies. LLED 401 is part of a block of courses in which teachers work with students in ways a PSU teacher education program is unified by basic set of principles supporting the development of a broader and more inclusive understanding of texts, children communities. Candidates are immersed in the study and experience of workshop and strategic models of writing instruction. Basic goals of this course are to help candidates to use language well and thoughtfully concerning writing instruction, literacy, literature and culture; and to think through instructional problems thoroughly, using multiple sources of information to experiment with alternative solutions. We also expect candidates to understand the roles which culture plays in literacy practices, literature, identifications of "ability," and schooling; to learn how people function effectively in groups; and to develop a repertoire of organizational, instructional, and evaluative strategies. A field experience connected to LLED 400 and LLED 401 affords teacher candidates the opportunity to inquire about children's literacy while learning alongside children and teachers in elementary grade classrooms. LLED 401 is part of a block of courses in a PSU teacher education program that is unified by the basic set of principles supporting the development of a broader and more inclusive understanding of texts, children, and communities.

Prerequisite: 4th Semester standing

Corequisite: LLED 400, LLED 402, CI 360

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description
- Remove Corequisite

**MATH 41: Trigonometry and Analytic Geometry (3-4 Credits) (BA)
(GQ)**

Old Listing Effective Through Fall 2023:

Straight lines; circles; functions and graphs; graphs of polynomial and rational functions; exponential and logarithmic functions; trigonometry; conic sections.

Prerequisite: Enforced Prerequisite at Enrollment: MATH 21 or satisfactory performance on the mathematics placement examination

Changes Effective Spring 2024:

- Change Credits
- Change Description

**MATSE 81: Materials in Today's World (3 Credits) (IL) (BA)
Old Listing Effective Through Fall 2023:**

A survey of the properties, manufacture, and uses of polymers, ceramics and metals in today's world with emphasis on modern developments and new materials. MATSE 081 Materials in Today's World (3) (GN;IL)(BA) This course meets the Bachelor of Arts degree requirements. MATSE 081 presents the basic science and technology of materials to non-science students. The course concentrates on 'Materials in Today's World' but frames the discussion in a relevant historical framework. The lectures are built around 'The Central Paradigm of Materials Science and Engineering', which links processing to structures to properties to performance. The fundamental basis of the science of materials, structure, is addressed first. Beginning at the sub-atomic level, the students are introduced to the intrinsically simple concept of metals and non-metals, and to a fundamental understanding of The Periodic Table. From these conceptual ideas, ceramics and electronic materials are rationalized on the basis of their electronic structures. The properties of materials, e.g., mechanical, thermal, electronic and photonic are developed directly from a knowledge of the structures discussed in earlier lectures. The concept of materials' design is introduced with respect to the properties of density, melting point and hardness. 'Young's modulus design's also described. There are as many processing routes as there are materials. Hence, the slate of lectures on processing, investigates prototypical examples of: metals – steel; ceramics – vitreous ceramics; and polymers-polyethylene. Current practices for e.g., the processing of steel and vitreous ceramics are compared with those, which were employed in antiquity. The performance of materials is a constant theme that permeates all the lectures. For example, during the 'firing of clay ceramics', the question 'how does the temperature of firing affect both performance and utility?' is addressed. The great thinkers of the physical sciences are introduced via vignettes that are presented, often at the beginning of class. Giants such as Aristotle and Newton are described, warts and all, in an effort to make science a broader part of the human experience. The professor also uses many examples from his own scientific experiences, and his interaction with some of the more (in) famous of the modern scientists.

Changes Effective Spring 2024:

- Gen Ed Recertification
- Description

**MATSE 112: Applied Materials Chemistry for Engineers (3 Credits)
Old Listing Effective Through Fall 2023:**

Description: Chemistry of materials with emphasis on intermolecular forces between atoms, molecules, ions, and dense materials and inorganic and organic physical chemistry. In most majors, this course is not a substitute for CHEM 013 or CHEM 112.

Prerequisite: CHEM 110

Changes Effective Spring 2024:

- Add GN
- Change Description

MATSE 455: Properties and Characterization of Electronic and Photonic Materials (3 Credits)**Old Listing Effective through Fall 2023:**

Materials characterization in general; electrical properties of crystals, contacts, films; optical properties of single phase materials, waveguide, and multilayer stacks.

Changes Effective Spring 2024:

- Change Prerequisites

MIS 307: Algorithmic Concepts (3 Credits)**Old Listing Effective Through Fall 2023:**

Using state-of-art programming language; concepts, program structure and design, documentation, file handling, and elementary data structures are introduced. MIS 307, Algorithmic Concepts, is a required course for information systems majors in the business program. The objective of the course is to present students with the principles of object oriented design and programming using a state-of-the-art programming language such as C++ or Java. Concepts include algorithm development, programming structure, documentation, UML modeling, file management, and elementary data structures such as arrays. This course requires the students to demonstrate their mastery of object oriented design and programming through a series of individual programming assignments. In addition, students are assigned a team project to foster problem solving, communication, and team skills required in the Information Technology work force. MIS 307 will be offered once per semester with multiple sections based on student enrollment and demand.

Prerequisite: Enforced Prerequisite at Enrollment: CMPSC 101 or CMPSC 102 or CMPSC 121 or IST 140

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description
- Change Prerequisites

MIS 390: Information Systems Management and Applications (3 Credits)**Old Listing Effective Through Fall 2023:**

Specification, design and implementation of information systems directed at aiding decision making in organizations. MIS 390 Information System Management and Applications (3) INFSY 390, Information Systems Management & Applications, is a required course for Information Systems and Business students. The course covers topics and concepts in Management Information Systems (MIS) and information technology management. Upon successful completion of this course, students will have a broad knowledge of contemporary issues and applications of MIS in business. In addition to exams, students use hands-on case studies and popular information technology applications in the class room. Students in the course also learn how to develop modern computer-based information systems through a business application project that helps them understand the role of MIS in business organizations. Topics covered in the course

include information systems in the enterprise, e-business and e-commerce, telecommunications and networking, database management, knowledge management, decision support systems, business value of information systems, and social and ethical issues of information systems. The course prerequisites are IST 110 or MIS 204 & MIS103 or CMPSC203. INFSY 390 will be offered once per semester with multiple sections based on student enrollment and demand.

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description
- Change Prerequisites

MIS 413: Interface design for Information Systems Applications (3 Credits)**Old Listing Effective Through Fall 2023:**

The study of interface design emphasizing application and user requirements, development and testing techniques, and information processing issues. MIS 413 MIS 413 Interface Design for Information Systems Applications (3) In order to design an information system, the designer must undertake a thorough task analysis to determine the proper functionality of the system. The designer must give attention to system reliability, security, standardization, portability, integration, and many other issues. While these issues are important, they do not directly address the needs of the system's users. The system's interface is the vehicle with which users interact with the system. It is, in essence, the system from the users' standpoint. A poorly-designed interface will deter people from using the system, while a well-designed interface will encourage system usage.

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description
- Change Prerequisites

MIS 420: Business Process Management (3 Credit)**Old Listing Effective Through Fall 2023:**

This course introduces students to concepts, approaches, and design principles used to identify, model, assess, and improve business processes. MIS 420 Business Process Management (3) The course builds the foundation for process analysis by focusing on key aspects of business processes, including collaboration, information flow, people, roles and business rules. The main objective is to provide an introduction to various techniques and tools of process analysis and workflow management including process mapping techniques and simulation. The course will utilize cases and examples to strengthen the student's understanding of business processes. At the end of the term students are expected to have the competency required to model and analyze current processes and develop coherent and well thought out improvement plans for redesigning organizational processes.

Changes Effective Spring 2024:

- Change Description
- Add Prerequisites

MIS 448: Business Telecommunications (3 Credits)**Old Listing Effective Through Fall 2023:**

Introduces telecommunication concepts, its evolution, and present applications in business. Discusses the software and hardware components of telecommunication networks.

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description

MIS 450: System Design Project (3 Credits)**Old Listing Effective Through Fall 2023:**

A project in the design, specification, and programming of a system in an application area. MIS 450 System Design Project (3) MIS 450, Systems Design Project, is a required course for information systems majors in the business program. MIS 450 is the capstone course. The primary objective of this course is for students to develop Information Systems (IS) solutions to real-life problems by following the entire systems development lifecycle (SDLC). The course allows students to demonstrate their mastery of the SDLC methodologies and analytical skills. Students develop a team project to foster problem solving, communication, and team skills. Individual assessment is evaluated through demonstration of the understanding of IS skills (i.e. application development, oral presentations, and written communication). Individuals are required to prepare professional written documents (i.e. definition document, the solution proposal, and the design document). Then students develop a solution prototype matching the criteria outlined in their requirement documents.

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description

MIS 461: Web Technologies (3 Credits)**Old Listing Effective Through Fall 2023:**

Fundamentals of Web development for e-business and related project management. MIS 461 Web Technologies (3) The objectives of this course are to enable students to fully understand the purpose, structure, and components of technologies utilized for e-business applications; to gain substantial hands-on experience, creating applications for e-business; understand how XML and other technologies are revolutionizing the Web and what it will do for complex real-world applications; to make students aware of research issues that apply to Web development; and to strengthen collaborative skills related to project development and management.

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Description
- Change Prerequisites

MUSIC 240: Introduction to Music Education (2 Credit)**Old Listing Effective Through Fall 2023:**

MUSIC 240 Introduction to Music Education (2)(BA) This course meets the Bachelor of Music Education degree requirements. MUSIC 240 is offered every fall semester for students who are considering the Teacher Certification program in Music Education. This course provides prospective music teachers with an opportunity to develop basic music teaching skills; identify behaviors of effective music teachers; identify their own strengths and weaknesses as a teacher, set goals based on those traits, and apply strategies to improve; develop their ability to reflect on their own teaching; and to understand and apply educational and music education theory to a variety of musical developmental levels. Students complete several practical assignments, present summations of small group discussions, and present micro-teaching lessons with peers in class. A midterm and final exam are typically given.

Changes Effective Spring 2024:

- Add Bachelor of Art Attribute
- Remove Prerequisites

MUSIC 453: Recording Studio Training (1 Credit)**Old Listing Effective through Fall 2023:**

Training in how to use a professional multi-track recording studio. MUSIC 453 Recording Studio Training (1)(BA) This course meets the Bachelor of Arts degree requirements. This is a course in recording studio engineering, directed at students who wish to learn how to operate a professional level multi-track recording studio. Topics include microphone theory, signal flow, audio mixing and mastering, and maintenance issues.

Changes Effective Spring 2024:

- Add BA
- Remove Prerequisites

NURS 452: Women's Health Issues (3 Credits) (US)**Old Listing Effective through Fall 2023:**

Recommended Preparations: BIOL 141; PSYCH 100; WMNST 100 N452 examines major health issues concerning women today. The topics covered include, but are not limited to: developing a healthy life style—nutrition and exercise; family planning—birth control methods; violence against women—relationship rights and signs of a batterer; eating disorders—anorexia, bulimia, and binge eating; sexual wellness; substance abuse—alcohol, prescription drugs; menopause signs and symptoms, treatments; and medical conditions affecting women today such as cancer, arthritis, multiple sclerosis and heart disease. The course emphasizes that women's lives are influenced by social, economic, political, and cultural conditions.

Changes Effective Spring 2024:

- Add GHW
- Change Description
- Cross List

NUTR 175Z: Healthy Food for All: Factors that Influence What we Eat in the US - LINKED (3 Credits) (US) (GHW)**Old Listing Effective Through Fall 2023:**

This course encompasses the study of eating behavior and how fundamentals of nutrition-policy (e.g., farm bill, child nutrition act that provides food education and food assistance in relation to Dietary Guidelines for Americans and Dietary Reference Intakes), the food

environment, and behavioral economics influence food choice thereby affecting the overall health, nutrition, and well-being of individuals and communities within the United States. While aspects of this are covered in a variety of disciplines (e.g., nutrition, food science, agriculture, economics, sociology, and others), these aren't always integrated for students. The purpose of this course is to provide an interdisciplinary perspective of how individuals, including those living in poverty, make food choices within their communities, and how these choices impact health and wellness. Topics include an introduction to what we eat, why we eat, and the key roles of diet on health with focus on the links among poverty, food security and obesity. The politics of food discusses portions of the Farm Bill and Child Nutrition Act with focus on the Women, Infants and Children Supplementary Food Program (WIC), the Special Nutrition Assistance Program (SNAP), and school lunch, and the influence these programs have on what is produced and consumed. The behavioral economics of food will focus on determinants of food choice including taste, cost, nutrition, and convenience as well as provide an overview of the biology and psychology of eating through hands-on experiential activities. Through these experiences, students will gain household budgeting skills across income levels that provides perspective to barriers to eating healthy. Lastly, food access dimensions will be discussed (e.g., food deserts, food swamps, grocery stores, targeted advertising/marketing) will be discussed. This course is a linked course with AGBM 170Z meets the General Education Integrative Studies requirement.

Changes Effective Spring 2024:

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

PHIL 15: How to Live (3 Credits) (BA) (IL) (GH)
Old Listing Effective Through Fall 2023:

Philosophy, uniquely, studies how best to live. But being better at questions than at answers, philosophy mainly provides hypotheses about the nature of good life and the various routes to it. Does it mean minimizing mental suffering, through elimination of superstition and fear? Or control of one's bodily desires, through feats of endurance? Or modesty about what you know, through examination of one's beliefs? Or reducing the amount of injustice you do, by thinking about the consequences of every action? Or changing the way people think, by revealing the power dynamics beneath everyday social institutions? Each week this course articulates one hypothesis from Western (e.g., Greek, Roman, European, American) or non-Western (e.g., Indian, Chinese) philosophy, historical or contemporary, then makes sense of the reasons for it, and then puts it into personal (or group) practice for five days. Students track, process, and evaluate their experiences through journaling, blogging, and other modes of writing, some of which will involve discussion with other students. Each week also features philosophical, literary, spiritual, or journalistic readings expressing the tenets of the particular way of life, defending it against other ways of life, or exploring the particular historical/cultural context that occasioned it. These readings may include, for example, Socratic dialogues, Stoic handbooks, meditation mantras, existential dramas, political manifestos, nature journals, or book reviews. At the semester's end, students invent their own philosophical "best way of life," formulating and justifying rules, models, or virtues to live by, and engage in conversation with other students on this topic. Students should leave the class recognizing the diversity and challenge of a range of way-of-life ideals, their

historical context and contemporary promise, how to decide on their appropriateness for themselves, and what it would mean to adopt, refine, and support their own "philosophy" of life.

Changes Effective Spring 2024:

- Change Description
- Add Cross Listing

PHIL 139: Latino/a Philosophy (3 Credits) (US) (IL) (GH)
Old Listing Effective Through Fall 2023:

This introduction to Latino/a Philosophy covers the historical experience of Latino/a peoples and the impact that those experiences have had and can have on "American" philosophy. It also covers race, class, gender, and ethnicity in relation to the Latino/a experience, and thus ethics, political theory, legal theory, critical philosophy of race, and feminist philosophy. In the process it offers an introduction to key themes in contemporary philosophy. The course includes comparisons with African American, Asian, and Native American philosophies.

Changes Effective Spring 2024:

- Add Cross Listing

PHIL 426: Seminar in Metaphysics (3 Credits) (BA)
Old Listing Effective Through Fall 2023:

Metaphysics is the branch of philosophy that asks, What is the fundamental nature of reality? Metaphysics is central to the philosophical endeavor; accordingly, metaphysical thought is vividly represented by figures throughout the history of philosophy (e.g., Plato, Aristotle, Thomas Aquinas, Descartes, Locke, Kant, Nietzsche, Heidegger) as well as among living, contemporary philosophers. This topic-oriented course builds on its precursor (PHIL 126: Metaphysics), providing a more nuanced understanding of particular issues of substantive interest in the field, for instance the analysis of substance and causation, the nature and reality of time and space, properties and universals, determinism and free will, the relation between mind and body, and the basis of personal identity. The course typically focuses on a single topic or a few closely interrelated ones and familiarizes students with influential contemporary and classical approaches to addressing them. Students will thereby hone both their interpretive and argumentative (analytical) skills, while gaining a deeper understanding of the inevitability and ubiquity of metaphysical questions throughout the sciences and humanities.

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Credits
- Change Description
- Change Prerequisites

PHIL 432: Medical and Health Care Ethics (3 Credits) (BA)
Old Listing Effective Through Fall 2023:

Examines ethical, political, and social issues in the research, implementation, and practice of medicine, medical technologies, and healthcare.

Prerequisite: Enforced Prerequisite at Enrollment: fifth-semester standing

Cross Listing: STS 432

Changes Effective Spring 2024:

- Change Cross List
- Abbreviated Title
- Description

PHIL 439: Asian Philosophies and Issues (3 Credits) (IL)**Old Listing Effective Through Fall 2023:**

Exploration of the traditions, problems, and authors of one or more of the philosophical systems of Buddhism, Hinduism, Taoism, and Confucianism.

Prerequisite: PHIL 7, 9 credits in philosophy, including PHIL 7 or 5th semester standing

Changes Effective Spring 2024:

- Change Title
- Change Abbreviated Title
- Change Prerequisites

PHIL 453: Seminar in Ancient Philosophy (3 Credits) (BA)**Old Listing Effective Through Fall 2023:**

This course allows intensive study of select authors, traditions, works, or questions from ancient Greek and Roman philosophy. Key authors may include, for instance, the Presocratics, Socrates, Plato, Aristotle, Epicurus, Lucretius, Cicero, Seneca, Augustine, or Plotinus. Key traditions may include Stoicism, Hedonism, Platonism, Skepticism, Jewish, Roman, and Christian reception, or Neoplatonism and Neopythagoreanism. Key works may include Nicomachean Ethics, On the Nature of Things, Confessions, or Enneads. Key themes may include ethics (e.g., virtue, human flourishing, and pleasure), psychology (e.g., emotion, character, immortality of the soul), epistemology (e.g., imagination, knowledge, wisdom), metaphysics (e.g., atomism, teleology, dualism), logic, aesthetics, or history. This course may also include intellectual and cultural context for claims or trends in ancient philosophy. Students will develop in-depth experience with parts of ancient philosophy that goes beyond what they receive in the department's mid-level survey, PHIL 200: Ancient Philosophy. They will also hone reading, interpretative, argumentative, and creative philosophical skills on the relevant texts, which are among the most fascinating, puzzling, and frequently referenced of the Western philosophical tradition.

Prerequisite: 9 credits of philosophy, including either PHIL 200 or 6 credits of philosophy at the 200 level

Changes Effective Spring 2024:

- Add US/IL Attribute
- Add Cross List
- Description
- Prerequisites

PNG 475: Production and Completions Engineering (3 Credits)**Old Listing Effective through Fall 2023:**

Design and selection of mechanical components used in the production of fluids from subsurface reservoirs.

Changes Effective Spring 2024:

- Change Description
- Add Concurrent

PORT 123: Portuguese for Romance-language Speakers (2 Credits) (BA)**Old Listing Effective Through Fall 2023:**

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 non-literary 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: Recommended Preparation: Students should have a high level of proficiency in, or be native or heritage speakers of, a Romance language

Changes Effective Spring 2024:

- Change Description

PSYCH 144Z: Climate Change: Individual Behaviors and Group Attitudes (3 Credits)**Old listing effective through Fall 2023:**

PSYCH 144Z: Climate Change - Individual Behaviors and Group Attitudes is intended to be an introduction to environmental attitudes and behavior research within the social sciences, especially the fields of social and environmental psychology. This course allows students to understand the varied psychological processes, including individual attitudes, societal values, and personality traits, that shape a person's interactions with and feelings toward the physical environment within the context of global climate change. Drawing on methodology and theory in the areas of attitude change, social cognition, environmental perception, pro-social behavior, and emotions, this course will provide students with insight into how individual and group actions and mental processes can impact beliefs and actions toward global climate change while also providing a foundation for ways to alter those behaviors in meaningful ways. By linking with other courses on climate change in the arts (GA) and natural sciences (GN), this course represents one piece of a larger discussion in which global problems such as climate change are studied and prevented from multiple perspectives and disciplines. PSYCH 144Z fulfills 3 credits of the GS Domain General Education requirements. PSYCH 144Z may also be used in combination with either ART 144Z or BIOL 144Z as linked courses to fulfill 6-credits of Integrative Studies

Changes Effective Spring 2024:

- Change Course Number
- Change Description
- Remove General Education Linked Attribute

RLST 105: Buddhism in the Western World (3 Credits) (US) (IL) (BA) (GH)**Old Listing Effective through Fall 2023:**

A general survey of the development of Buddhism as a religious tradition in the West, focusing especially on America. RL ST 105 Buddhism in the Western World (3) (GH;US;IL) (BA) This course meets the Bachelor of Arts degree requirements. The academic study of religion is distinct from instruction in a religion in so far as one seeks simply to learn about religion, or religions, by considering the history, texts, major figures, and belief systems of one or more traditions. Because religions are always deeply intertwined with the entire cultural history of a region, studying a religion has always involved placing it in a larger cultural context. Buddhism in the Western World (RL ST 105) provides an intense concentration on a particular topic from the Buddhist religious tradition, focusing on historical, comparative, and phenomenological concerns. The course concentrates on the major figures involved, integrated with significant issues and religious practices in the development of the aspect of the Buddhist religious tradition under investigation. In many cases, across the face of Indian, Chinese, and Japanese Buddhism, gender, racial, and ethnic issues play critical roles in the development of the tradition studied, and these are explored in depth. Finally, the course examines the symbols, myths, and rituals of culture or cultures involved, which are radically different than our own, providing for each student the opportunity to compare, consider, and assess a wide variety of expressions of religiosity. Evaluation is research paper. Buddhist in the based on discussion, written assignments, and a major Western World, RL ST 105, offers a special focus on a particular aspect of one of the major religious traditions of the world. Because general approaches and methodologies in the academic study of religion are employed throughout the course, RL ST 105 is linked to all other courses in religious studies. RL ST 105 may be used to fulfill 3 credits in the Humanities, and may also be used to fulfill a US;IL requirement in the major or minor.

Changes Effective Spring 2024:

- Add Gen Ed GS
- Cross List
- Change Number
- Change Title
- Change Abbreviated Title
- Change Description

RM 475: Quantitative Analysis for Business (3 Credits)**Old Listing Effective Through Fall 2023:**

This course provides students with working knowledge of some widely used quantitative methods, such as Monte Carlo simulations, t-tests, linear regressions, nonlinear regressions, regressions with dummy variables, and regressions with interacting explanatory variables, as well their applications in business. The course will focus on understanding and applying each method, but not on statistical theory or their proof. Monte Carlo simulations will be used to substitute for mathematical proofs. By the end of the course, students should understand the purposes of the above methods and how to use them to solve real estate, financial, marketing, and risk management problems. Students should

also be able to interpret results in ways that are correct, insightful, and useful, should be aware of potential problems of each method, such as the omitted variable bias, multicollinearity, heteroskedasticity of regressions, and should know how to make corrections if these problems are present. Students should also have developed working knowledge of R, which is a programming language and software environment widely used by quantitative analysts. Students should know how to use R to conduct basic data manipulation, do simple Monte Carlo simulations, do t-tests, and run linear and non-linear regressions.

Changes Effective Spring 2024:

- Add Cross List

SC 306W: BS MBA Undergraduate Seminar (1 Credit) (WF)**Old Listing Effective Through Fall 2023:**

This course is designed for students enrolled in the Science BS/MBA IUG degree program. It will provide an opportunity for students to become familiar with key MBA common terms and concepts that will be useful for their required co-ops, internships, and their transition into work in the Smeal MBA part of the degree program. During the course, instructors will introduce or reinforce learning about hard skills of supply chain management, finance, business planning and marketing, and soft skills associated with leadership, organizational dynamics and modern management. The course will improve student ability to formulate and present strategies and communicate effectively as a leader and team member. The course will expand the number of occasions for the BS/MBA class cohort to experience inter-class interaction and it will provide mutual support opportunities. In order to facilitate these inter-class interactions, it is designed to be repeatable so students in later years of the program can work with the students just beginning the program. The course will augment the integrative learning that was established in first year seminars and extracurricular BS/MBA enrichment programs. The course is designed to facilitate continued student development as self-directed learners. The course will advance student perspectives of professional and career development.

Changes Effective Spring 2024:

- Change Credits

RPTM 220: Sustainability, Society, and Well-being (3 Credits)**Old Listing Effective Through Fall 2023:**

We live in a world increasingly connected via global processes and social networks, and social networks, and increasingly challenged by exponential growth in demands on our planet's finite environmental resources. This makes sustainability more of an imperative each day. But what exactly is sustainability? How does it relate to your career in RPTM or to your studies in other departments at Penn State? This course is designed to provide students with strong foundational knowledge about sustainability and how it relates to their career in Recreation, Park and Tourism Management. To develop students' understanding of the concept of sustainability, the course explores how interconnected social, economic, and environmental systems have resulted in the contemporary sustainability challenges we face both globally and locally. Each week students are presented with the large scale, global status of a particular issue related to sustainability before then exploring these challenges in increasingly local contexts of the U.S., Pennsylvania, and a career path in RPTM. In contemplating the broad scope of sustainability, students will become better informed about the many ways that their career in RPTM is influenced by this global context of challenges to social, environmental, and economic sustainability. In exploring how RPTM activities exert an

influence on sustainability goals, students will be better equipped to address sustainability challenges within the organizations in which they work as well as in their everyday lives.

Changes Effective Spring 2024:

- Add US/IL
- Add GS
- Change Description

RUS 402: Advanced Russian B (3 Credits)

Old Listing Effective through Fall 2023:

Advanced Russian grammar, conversation, and composition. RUS 402 Advanced Russian B (3) RUS 402 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 functions as a complement to RUS 401. Emphasis will be placed on prefixed verbs of motion, use of the imperative, comparative and superlative forms, and complex and conditional sentences in Russian. Classes will include group and individual oral presentations, analyses of written texts, and assignments using the internet to access recent oral and written materials that treat current events and illustrate particular linguistic usage. Students will also watch one feature film during class time.

Changes Effective Spring 2024:

- Add IL, BA
- Change Title
- Change Abbreviated Title
- Change Description
- Prerequisites

SC 306: BS / MBA Seminar (1 Credit)

Old Listing Effective through Fall 2023:

This course is designed for students enrolled in the Science BS/MBA IUG degree program. It will provide an opportunity for students to become familiar with key MBA common terms and concepts that will be useful for their required co-ops, internships, and their transition into work in the Smeal MBA part of the degree program. During the course, instructors will introduce or reinforce learning about hard skills of supply chain management, finance, business planning and marketing, and soft skills associated with leadership, organizational dynamics and modern management. The course will improve student ability to formulate and present strategies and communicate effectively as a leader and team member. The course will expand the number of occasions for the BS/MBA class cohort to experience inter-class interaction and it will provide mutual support opportunities. In order to facilitate these inter-class interactions, it is designed to be repeatable so students in later years of the program can work with the students just beginning the program. The course will augment the integrative learning that was established in first year seminars and extracurricular BS/MBA enrichment programs. The course is designed to facilitate continued student development as self-directed learners. The course will advance student perspectives of professional and career development.

Changes Effective Spring 2024:

- Change Title
- Change Credits

SOC 210Z: Social Determinants of Health (3 Credits) (GS)

Old Listing Effective Through Fall 2023:

How is it that the United States spends more on medical care than any other country and yet ranks poorly on many indicators of health and well-being? Why are there so many and important health disparities across different population groups within the United States? How do our social, economic and political conditions "get under the skin" to affect our health and well-being? These kinds of questions are fundamental in the growing interdisciplinary field of population health and will be addressed in this course. The purpose of this course is to introduce you to the social factors that influence health, such as race, class, gender, social networks, families, and public policies. We will explore the range of broader social factors that influence health, key sociological concepts and theories that help us understand these processes, and methods used to study them. The course will enhance student education and engagement in the area of vulnerable populations and health equity.

After taking this course, students will be able to:

- Describe the social and economic factors that influence health and disease patterns
 - Describe and discuss the social and economic factors that contribute to health inequalities across populations, particularly in the United States
 - Understand the important role social determinants play in the health of individuals and society
- HDFS 210Z and SOC 210Z are linked.

Changes Effective Spring 2024:

- Change Number
- Change Description
- Add GHW

SOC 211Z: Health Inequality: Understanding the Geographies of Life and Death Abbreviated (3 Credits: Maximum of 3 Credits)

Old listing effective through Fall 2023:

This course provides an introduction to the concepts, measurement and study of health and health inequality across geographic scales from the international to the local scale, and to study health inequality in diverse contexts (including urban and rural; historical and contemporary). The lectures will cover the nature, causes and consequence of health inequality, temporal trends and spatial patterns in health indicators, and examine associations between socioeconomic and environmental factors and health. The emphasis will be on easily measured and available primary health indicators such as mortality and morbidity, communicable and non-communicable disease as well as mental health. The lab component of the course will focus on finding, critiquing, interpreting and presenting health-related data and will introduce students to fundamental concepts and expand their skill set in both basic statistics (numerical and graphical skills) and mapping (geographic visualization skills). At the end of the course the students will be more familiar with measures of human health and a variety of international and US data resources. The lecture component begins with focus on describing and understanding past, present and future patterns and trends in human health, examining these at the global, national (US), regional (Appalachia) and local (Pennsylvania) scales. The second half of the course includes lectures on the social determinants of health, the ways in which the legal landscape and direct and indirect discriminatory practices can influence health (and risk-taking behaviors), mental health, and the geographies of access to resources and the geography of exposure to risks. The final lecture will discuss 21st century "Global" health challenges. The parallel lecture and labs provide opportunities for practical learning. The labs are designed to expose students to the use of health data, geographic information systems and basic spatial analysis tools providing them with skills that

help them to accurately summarize and report data on health outcomes. Students will learn how to find, critique and use data appropriately to measure and map health outcomes. The labs will be based on sample data sets and case studies that draw on the use and interpretation of a variety of data sets, international, national, and sub-national. Towards the end of the course, students will generate their own community health case study based on the skills they have used during the course. HDFS 210Z is linked to SOC 211Z

Changes Effective Spring 2024:

- Change Course Number
- Change Description
- Remove General Education Linked Attribute

SOC 451: Health, Disease & Society (3 Credits) (GS)
Old Listing Effective Through Fall 2023:

This course provides an introduction to the concepts, measurement and study of inequality across spatial scales and in diverse contexts. SOC 451 Health, Disease & Society (3) (GS) Health is not simply a matter of biology, but involves a number of factors that are social, cultural, political, geographic, and economic in nature. This course will focus on the critical role social factors play in determining or influencing the health of individuals, groups, and the larger society. The emphasis in the course is on the social patterning of health and disease with focusing on variation by age, gender, race/ethnicity, disability status, socioeconomic status (income, education, occupation) and neighborhood/community. There will be selected coverage of the "sociology of medicine" with some discussion of medical power and knowledge, the organizational structure of health care, and the experience of illness and such issues such as stigma.

Prerequisite: Enforced Prerequisite at Enrollment: 3 credits in SOC

Changes Effective Spring 2024:

- General Education Recertification

SPAN 301: Advanced Writing and Stylistics in Spanish for Spanish Speakers (3 Credits)

This course will enhance writing proficiency in Spanish of Spanish speaking students by targeting common problems characteristic of Spanish speakers.

Changes Effective Spring 2024:

- Change Number
- Change Title
- Change Abbreviated Title

SRA 365: Statistics for Security and Risk Analysis (3 Credits)
Old Listing Effective Through Fall 2023:

Theoretical foundations and practice of intermediate statistics. SRA 365 Statistics for Security and Risk Analysis (3) SRA 365 is an intermediate-level statistics course emphasizing how to summarize data using descriptive statistics, how to make data-driven decisions using inferential statistics, and how to critically evaluate data presented in the media, all within the context of security, risk, and analysis. This is both a theory and application course. Students will learn about statistical theories, such as regression, and chi-square analyses, and apply their knowledge of these theories by analyzing and interpreting data using a statistical software package.

Prerequisite: Enforced Prerequisite at Enrollment: STAT 200

Changes Effective Spring 2024:

- Prerequisites

STS 233Z: Ethics and the Design of Technology (3 Credits)
Old listing effective through Fall 2023:

Humans have always created artifacts and artificial environments to aid us in our survival and to help fulfill our needs and desires. Moreover, today technology is all pervasive, transforming and conditioning our social and political relations, our cultural understanding of ourselves, and our relationship with other animals and the natural environment. Designers make important choices concerning the creation, development, and deployment of many if not most technological innovations. Consequently, the task of the designer is an ethical one. It is therefore important to give future designers the opportunity to reflect upon the meaning of technology, particularly in its moral dimensions. Two means will be used to achieve our course goals. Much of the time will be spent thinking about and discussing the various impacts that particular technologies have upon the social, cultural, and political lives of human beings and upon the natural environment. To facilitate thoughtful discussion, we will read a number of authors, writing short papers in preparation for critical discussion in class. The second means is aimed at putting our ideas into practice by working in teams on several design projects. These design projects will require the integration of readings, discussion, and research and their synthesis to resolve the moral aspect of a design problem. Student teams will work cooperatively on these projects and make oral progress reports as well as final written and oral reports. Cross-listed Courses: PHIL 233Z

Changes Effective Spring 2024:

- Change Course Number
- Remove General Education Linked Attribute

THEA 206: Critical Theory for Performance (3 Credits) (BA) (GH)
Old Listing Effective Through Fall 2023:

THEA 206 is an intensive introduction to critical performance theory. Through reading, writing, and attendance at arts events, students will learn methods for experiencing, analyzing, and writing about theatre, dance, and other performing arts forms through the lenses of class, race, gender, nationalism, and abilities. To do this, students will learn and apply concepts from critical theory from its historical precedents to its contemporary forms. These theories include semiotics and structuralism; post-Structuralism and deconstruction; Marxism and materialism; feminism and queer theory; postmodernism and post-colonial theory. Students will apply concepts learned through several scaffolded writing projects-response papers, a critical essay, and a performance analysis (long-form review).

Prerequisite: Enforced Prerequisite at Enrollment: THEA 100 or THEA 101N or THEA 105 or DANCE 100

Changes Effective Spring 2024:

- Change Prerequisites

THEA 485: Sound for Theatre Production (3 Credits)
Old Listing Effective Through Fall 2023:

Aesthetics of live and recorded sound; recording and editing techniques for the stage.

Prerequisite: THEA 100, THEA 106, THEA 150

Changes Effective Spring 2024:

- Change Prerequisites

Program Changes

Accounting, B.S. (Abington, Berks) (ACCAB_BS, ACCBK_BS)

Effective Fall 2023:

- Added new Integrated B.S. in Accounting and M.P.Acc. in Accounting at Abington and Berks campuses

Acting, B.F.A. (ACTNG_BFA)

Effective Fall 2023:

- Decreased Requirements for the Major from 87 credits to 83 credits
- Changed General Education credits included in Requirements for the Major from 12 credits to 9 credits
- Increased Electives from 1 credit to 2 credits
- Decreased Prescribed Courses from 78 credits to 74 credits
- Added DANCE 499, THEA 106, THEA 201W, THEA 437 to Prescribed Courses
- Removed PHOTO 100, THEA 100, THEA 146, THEA 150, THEA 209, THEA 401, THEA 402 from Prescribed Courses
- Increased Additional Courses from 3 credits to 9 credits
- Added THEA 401, THEA 402, THEA 403, THEA 404, THEA 405W to Additional Courses
- Removed THEA 405Y from Additional Courses
- Removed Supporting Courses and Related Areas

Actuarial Science, B.S. (ACTSC_BS)

Effective Summer 2023:

- Revised Entrance to Major Requirements
- Increased Requirements for the Major from 76 credits to 82 credits
- Changed General Education credits included in Requirements for the Major from 12 credits to 15 credits
- Decreased Electives from 11 credits to 8 credits
- Increased Prescribed Courses from 62 credits to 65 credits
- Added RM 421, STAT/MATH 415 to Prescribed Courses
- Removed RM 412 from Prescribed Courses
- Increased Additional Courses from 10 credits to 13 credits
- Added ENGL 15, ENGL 30H, ENGL/CAS 137H, ESL 15, RM 412, RM 422, STAT 380, STAT 462 to Additional Courses
- Removed RM 401, RM 415, RM 420 from Additional Courses

Advertising/Public Relations, B.A. (ADPR_BA)

Effective Spring 2024:

- Removed Requirement that students must select at least 72 credits in courses outside the Bellisario College of Communications

Architectural Engineering, B.A.E. (AE_BAE)

Effective Summer 2023:

- Added Transfer Student admission evaluation criteria
- Changed Requirements for the Major from 148-152 credits to 145-149 credits
- Increased Electives from 0 credits to 3 credits
- Changed Common Requirements for the Major from 112-116 credits to 109-113 credits
- Added AE 240, EDSGN 100 to Prescribed Courses for the Major
- Changed ARCH 130A from 6 credits to 3 credits
- Changed Additional Courses for the Major from 27-30 credits to 24-27 credits
- Added LARCH 60 to Additional Courses for the Major
- Removed ARCH 210, EDSGN 100, EDSGN 130 from Additional Courses for the Major
- Decreased Prescribed Courses from 21 credits to 18 credits in the Lighting/Electrical Option
- Removed ARCH 442 from Prescribed Courses in the Lighting/Electrical Option
- Increased Supporting Courses and Related Areas from 12 credits to 15 credits in the Lighting/Electrical Option
- Decreased Prescribed Courses from 30 credits to 27 credits in the Mechanical Option
- Removed ARCH 442 from Prescribed Courses in the Mechanical Option
- Increased Supporting Courses and Related Areas from 6 credits to 9 credits in the Mechanical Option
- Decreased Prescribed Courses from 27 credits to 24 credits in the Structural Option
- Removed ARCH 442 from Prescribed Courses in the Structural Option
- Increased Supporting Courses and Related Areas from 9 credits to 12 credits in the Structural Option

Athletic Training, B.S. (ATHTR_BS)

Effective Spring 2024:

- Program phased out

Biobehavioral Health, B.S. (Health and Human Development, Capital, University College) (BBH_BS, BBHCA_BS, BBHUC_BS)

Effective Fall 2023:

- Added the C or better requirement to BIOL 110 in Prescribed Courses
- Added MICRB 201, MICRB 202, BBH 325 to Additional Courses
- Removed ANSC 479/BIOL 479, CSD 101, HDFS 229H, KINES 165, KINES 304, MICRB 106H from Additional Courses

Business, B.S. (University College) (BSBUC_BS)

Effective Summer 2023:

- Accounting option discontinued at Hazleton campus

Children, Youth and Family Services, Certificate (CYF_UCT)

Effective Spring 2023:

- Program phased out

Civil Engineering, B.S. (Capital) (CECA_BS)

Effective: Summer 2023:

- Added new Integrated B.S. in Civil Engineering and M.S. in Civil Engineering at Harrisburg campus

Communication and Social Justice, Minor (CSOCJ_UMNR)**Effective Summer 2023:**

- New minor added

Communication Arts and Sciences, B.A. (Liberal Arts, Berks, University College) (CAS_BA, CASBK_BA, CASUC_BA)**Effective Fall 2023:**

- Changed total requirements for degree completion for the Foundations, Scholarship, and Practice Option from 123 credits to 120 credits
- Changed Electives from 15 credits to 12-15 credits

Communication Arts and Sciences, B.S. (CASBS_BS)**Effective Fall 2023:**

- Changed total requirements for degree completion from 123 credits to 120 credits
- Changed Electives from 24 credits to 21 credits

Communication Arts and Sciences, Minor (CAS_UMNR)**Effective Spring 2024:**

- Revised Supporting Courses and Related Areas to specify requirement for 6 additional 400-level CAS courses

Community, Environment, and Development, B.S. (CED_BS)**Effective Summer 2023:**

- Revised Program Description
- Changed Common Requirements for the Major from 60-62 credits to 63-65 credits
- Increased Prescribed Courses for the Major from 33 credits to 36 credits
- Added CED 252 to Prescribed Courses for the Major
- Decreased Community and Economic Development Option from 30 credits to 27 credits
- Removed SOC 23 from Prescribed Courses in the Community and Economic Development Option
- Moved ERM 411 from Additional Courses to Prescribed Courses in the Community and Economic Development Option
- Removed BLAW 425 from Additional Courses the Community and Economic Development Option
- Decreased Environmental Economics and Policy Option from 30 credits to 27 credits
- Added ECON 428 to Prescribed Courses in the Environmental Economics and Policy Option
- Removed CED 329H from Prescribed Courses in the Environmental Economics and Policy Option
- Moved ERM 411 from Additional Courses to Prescribed Courses in the Environmental Economics and Policy Option
- Removed BLAW 425 from Additional Courses in the Environmental Economics and Policy Option
- Removed 3 credits of Environmental Science from approved department list from Supporting Courses and Related Areas in the Environmental Economics and Policy Option
- Decreased International Development Option from 30 credits to 27 credits

- Removed 3 credits of International related from approved department list from Supporting Courses and Related Areas in the International Development Option
- Decreased Social and Environmental Responsibility Option from 30 credits to 27 credits
- Removed 3 credits of biophysical science-based sustainability or environment from approved department list from Supporting Courses and Related Areas in the Social and Environmental Responsibility Option

Computer Science, B.S. (Capital, Abington) (COMP_BS, CMPAB_BS)**Effective Summer 2023:**

- Revised Entrance to Major Requirements
- Decreased Common Requirements for the Major from 88 credits to 53 credits
- Decreased Prescribed Courses for the Major from 62 credits to 50 credits
- Added CMPSC 330 to Prescribed Courses for the Major
- Removed CMPSC 221, CMPSC 470, MATH 318/STAT 318, CMPSC 121, CMPSC 122 from Prescribed Courses for the Major
- Decreased Additional Courses for the Major from 15 credits to 3 credits
- Added STAT 318/MATH 318, STAT 414/MATH 414 to Additional Courses for the Major
- Removed CMPSC 313, CMPSC 412, CMPSC 413, CMPSC 421, CMPSC 438, CMPSC 441, CMPSC 444, CMPSC 445, CMPSC 455/MATH 455, CMPSC 457, CMPSC 475, CMPSC 496, CMPSC 497, MATH 401, MATH 410, MATH 411, MATH 412, MATH 425, MATH 430, MATH 435, MATH 448, MATH 449, MATH 450, MATH 465, MATH 468, MATH 485, MATH 496, MATH 497 from Additional Courses for the Major
- Removed Supporting Courses and Related Areas for the Major
- Added new Data Science Option
- Added new General Option

Computer Science, B.S. (Abington) (CMPAB_BS)**Effective Spring 2024:**

- Added new Integrated B.S. in Computer Science and M.S.E. in Software Engineering at Abington campus

Creative Writing, Minor (CWRT_UMNR)**Effective Summer 2023:**

- Changed introductory-level course requirement from 6 credits to 9 credits in Additional Courses
- Changed advanced -level writing workshop course requirement from 12 credits to 9 credits in Additional Courses

Cybersecurity Analytics and Operations, B.S. (Information Sciences and Technology) (CYAOP_BS)**Effective Fall 2023:**

- Added new Integrated B.S. in Cybersecurity Analytics and Operations and M.S. in Informatics at University Park campus
- Added new Integrated B.S. in Cybersecurity Analytics and Operations and M.S. in Cybersecurity Analytics and Operations at University Park campus

- Added new Integrated B.S. in Cybersecurity Analytics and Operations and M.P.S. in Cybersecurity Analytics and Operations at University Park campus

Data Sciences, B.S. (Information Sciences and Technology, Engineering, Science) (DATSC_BS, DTSCE_BS, DTSCS_BS)

Effective Summer 2023:

- Revised Program Description
- Changed Requirements for the Major from 75-84 credits to 72-81 credits
- Changed Electives from 0-9 credits to 3-12 credits
- Decreased Common Requirements for the Major from 37 credits to 34 credits
- Decreased Additional Courses for the Major from 13 credits to 10 credits
- Removed STAT 318/MATH 318, STAT 418/MATH 418 from Additional Courses for the Major
- Changed Requirements for the Applied Data Sciences Option from 41 credits to 47 credits
- Increased Prescribed Courses for the Applied Data Sciences Option from 10 credits to 13 credits
- Added DS 305 to Prescribed Courses for the Applied Data Sciences Option
- Increased Additional Courses for the Applied Data Sciences Option from 9 credits to 12 credits
- Added STAT 318/MATH 318, STAT 414/MATH 414, STAT 418/MATH 418 to Additional Courses for the Applied Data Sciences Option

Data Sciences, B.S. (Science) (DTSCS_BS)

Effective Fall 2023:

- Added new Integrated B.S. in Data Sciences and M.A.S. in Applied Statistics at University Park campus

Deafness and Hearing Studies, Minor (DHS_UMNR)

Effective Fall 2023:

- Program phased out

Education Policy Studies, Minor (EPS_UMNR)

Effective Summer 2023:

- Changed name of minor to Education and Public Policy
- Added EDTHP 200 to Prescribed Courses
- Removed EDPSY 14 from Prescribed Courses

Electrical Engineering, B.S. (Capital) (EENG_BS)

Effective Summer 2023:

- Revised Entrance-to-Major Requirements
- Changed total requirements for degree completion from 135 credits to 134 credits
- Changed Requirements for the Major from 114 credits to 113-115 credits
- Removed CMPSC 202 from Additional Courses

Electrical Engineering Technology, B.S. (Capital, Engineering) (EET_BS, EETEN_BS)

Effective Summer 2023:

- Changed Requirements for the Major from 85-96 credits to 86-96 credits
- Changed General Education credits included in Requirements for the Major from 18 credits to 18-21 credits
- Changed Electives from 5-16 credits to 5-18 credits
- Changed Common Requirements for the Major from 59-70 credits to 60-70 credits
- Changed Additional Courses for the Major from 32-43 credits to 33-43 credits
- Added EDSGN 101S, EGT 119, CMPSC 131, PHYS 250, PHYS 251, MATH 220, MATH/STAT 414, MATH/STAT 418, STAT 401, IE 424, EET 214, EET 215, EET 212W, CMPEN 270, EE 317, EET 310 to Additional Courses for the Major
- Removed EGT 101, EGT 102, MATH 411, EET 205, EET 210, EE 314, EE 315 from Additional Courses for the Major
- Changed Prescribed Courses for the General Electrical Engineering Technology Option from 0 credits to 3 credits
- Added ENGR 320Y to Additional Courses for the General Electrical Engineering Technology Option
- Changed Additional Courses for the General Electrical Engineering Technology Option from 26 credits to 23 credits
- Added EE 413, EET 461, EET 496 to the Electronics Elective in Additional Courses for the General Electrical Engineering Technology Option
- Added EE 413, EE 442, EE 456/EGEE 456/ESC 456, EET 402, EET 408, EET 409, EET 431, EET 433, EET 461 to the GEET Technical Elective in Additional Courses for the General Electrical Engineering Technology Option
- Removed EE 441 from the GEET Technical Elective in Additional Courses for the General Electrical Engineering Technology Option
- Added Science, Engineering, and Technology (SET Electives) to Additional Courses for the General Electrical Engineering Technology Option
- Removed CMPSC 452 from Additional Courses in the General Electrical Engineering Technology Option
- Removed Computer Engineering Technology Option
- Added new Power and Automation Option

Electronic and Photonic Materials, Minor (EPM_UMNR)

Effective Spring 2024:

- Program phased out

Elementary and Early Childhood Education, B.S. (CEAED_BS)

Effective Fall 2023:

- Changed Program Description
- Revised Entrance to Major Requirements
- Decreased total requirements for degree completion from 127 credits to 124 credits
- Decreased Requirements for the Major from 109-110 credits to 103-104 credits
- Changed General Education credits included in Requirements for the Major from 27 credits to 24-25 credits
- Decreased Prescribed Courses from 70 credits to 64 credits
- Added CI 405, CI 460, ECE 453 to Prescribed Courses
- Removed ECE 479, KINES 126, KINES 127, MATH 200, CI 280, MUSIC 241 from Prescribed Courses

- Added MTHED 240, MATH 200, CI 280, EDUC 466N, WLED 400 to Additional Courses
- Removed AED 303, CI 460 from Additional Courses
- Added ECE 479 to Supporting Courses and Related Areas
- Removed ECE 453, ECE 454/HDFS 454, HDFS 469U, SOC 30, WLED 444/CIED 444 from Supporting Courses and Related Areas

English, B.A. (Behrend) (ELISH_BA)

Effective Spring 2024:

- Revised Program Description
- Changed Electives from 6 credits to 9-12 credits
- Changed Requirements for the Major from 15 credits to 39-42 credits
- Changed Prescribed Courses from 12 credits to 9 credits
- Removed ENGL 403 from Prescribed Courses
- Changed Additional Courses from 3 credits to 9-12 credits
- Added ENGL 494, ENGL 495, APLNG 210, ENGL 100, LING 100 to Additional Courses
- Changed Supporting Courses and Related Areas from 0 credits to 21 credits
- Added Supporting Courses and Related Areas section
- Removed Literature, Film and Culture Option
- Removed Professional Writing Option

English, B.Hum. (ENGCA_BHUM)

Effective Summer 2023:

- Revised Entrance to Major Requirements
- Changed General Education credits included in Requirements for the Major from 0-18 credits to 0-15 credits
- Changed Electives from 3-24 credits to 0-18 credits
- Removed ENGL 425 from Additional Courses in the Creative Writing Option
- Removed ENGL 425 from Additional Courses in the General English Option
- Added EDUC 385, LLED 420 to Prescribed Courses in the Secondary Education Option
- Removed EDUC 422 from Prescribed Courses in the Secondary Education Option
- Changed EDUC 490 from 12 credits to 9 credits in Prescribed Courses in the Secondary Education Option

Enterprise Architecture, Certificate (ENARCH_UCT)

Effective Spring 2023:

- Program phased out

Enterprise Technology Integration, B.S. (Capital) (ETICA_BS)

Effective Fall 2023:

- Program added to Penn State Harrisburg, the Capital College

Enterprise Technology Integration, B.S. (Information Sciences and Technology) (ETCHI_BS)

Effective Fall 2023:

- Program added to World Campus

Effective Spring 2024:

- Added new Integrated B.S. in Enterprise Technology Integration and M.S. in Cybersecurity Analytics and Operations at University Park campus

Film Production, B.A. (FILM_BA)

Effective Spring 2024:

- Revised Program Description
- Removed Requirement that students must select at least 72 credits in courses outside the Bellisario College of Communications
- Removed COMM 433 from Additional Courses

Forensic Science, B.S. (FRNSC_BS)

Effective Fall 2023:

- Changed total requirements for degree completion from 124-126 credits to 122-123 credits
- Decreased Requirements for the Major from 97-99 credits to 88-91 credits
- Changed General Education credits included in Requirements for the Major from 18 credits to 18-21 credits
- Increased Electives from 0 credits to 5-10 credits
- Increased Common Requirements for the Major from 63 credits to 69 credits
- Increased Prescribed Courses for the Major from 52 credits to 58 credits
- Added BIOL 110, BIOL 230W, FRNSC 485 to Prescribed Courses for the Major
- Removed FRNSC 485W from Prescribed Courses for the Major
- Changed Name of Forensic Biology Option to Forensic Molecular Biology Option
- Decreased Forensic Molecular Biology Option from 36 credits to 19 credits
- Decreased Prescribed Courses for the Forensic Molecular Biology Option from 21 credits to 13 credits
- Added FRNSC 420 to Prescribed Courses for the Forensic Molecular Biology Option
- Removed BMB 251, BMB 400, MICRB 201, MICRB 202 from Prescribed Courses for the Forensic Molecular Biology Option
- Decreased Additional Courses for the Forensic Molecular Biology Option from 9 credits to 6 credits
- Removed Supporting Courses and Related Areas for the Forensic Molecular Biology Option
- Decreased Forensic Chemistry Option from 34 credits to 20-22 credits
- Decreased Prescribed Courses for the Forensic Chemistry Option from 19 credits to 11 credits
- Added FRNSC 425 to Prescribed Courses for the Forensic Chemistry Option
- Removed BIOL 110, BIOL 230W, CHEM 425W from Prescribed Courses for the Forensic Chemistry Option
- Changed Additional Courses for the Forensic Chemistry Option from 9 credits to 9-11 credits
- Removed Supporting Courses and Related Areas for the Forensic Molecular Biology Option

Fundraising and Advancement, Certificate (FNDADV_UCT)

Effective Spring 2024:

- Program phased out

Health Policy and Administration, B.S. (Health and Human Development, Capital, University College) (HPA_BS, HPACA_BS, HPAUC_BS)

Effective May 5, 2023:

- Enrollment Hold implemented at Schuylkill campus; program not accepting new students at Schuylkill campus

Effective Fall 2023:

- Increased General Education credits included in Requirements for the Major from 9 credits to 12 credits
- Changed Electives from 1-6 credits to 4-6 credits
- Added HPA 301, HPA 390 to Prescribed Courses
- Removed HPA 301W, HPA 390W from Prescribed Courses
- Added HPA 438, HPA 446 to Additional Courses

Hospitality Management, B.S. (Health and Human Development, Berks) (HM_BS, HMBK_BS)

Effective Spring 2024:

- Revised Program Description
- Decreased Requirements for the Major from 79-87 credits to 73-84 credits
- Changed Electives from 0-5 credits to 3-11 credits
- Decreased Common Requirements for the Major from 58-59 credits to 49-50 credits
- Decreased Prescribed Courses for the Major from 55 credits to 46 credits
- Added HM 366, HM 490, HM 101, HM 242, HM 265W to Prescribed Courses for the Major
- Removed HM 435, HM 442, HM 466, NUTR 119, HM 201, HM 290W, HM 365, HM 490W to Prescribed Courses for the Major
- Increased Hospitality Management Option from 28 credits to 34 credits
- Increased Supporting Courses and Related Areas for the Hospitality Management Option from 19 credits to 25 credits
- Increased Hospitality Entrepreneurship Option from 21-22 credits to 24-25 credits
- Increased Prescribed Courses for the Hospitality Entrepreneurship Option from 12 credits to 15 credits
- Added HM 435 to Prescribed Courses for the Hospitality Entrepreneurship Option

Human Capital Management, Certificate (HCPMG_UCT)

Effective Summer 2023:

- New certificate added

Human-Centered Design and Development, B.S. (Information Sciences and Technology) (HCDD_BS)

Effective Fall 2023:

- Added new Integrated B.S. in Human-Centered Design and Development and M.S. in Cybersecurity Analytics and Operations at University Park campus

Effective Spring 2024:

- Added new Integrated B.S. in Human-Centered Design and Development and M.S. in Informatics at University Park campus

Industrial Engineering, B.S. (Engineering, Behrend) (IE_BS, IESBC_BS)

Effective Fall 2023:

- Removed the C or better requirement for MATH 250 and PHYS 212 in Prescribed Courses

Information Technology, B.S. (Information Sciences and Technology) (ISSWC_BS)

Effective January 30, 2024:

- Enrollment Hold implemented for Information Technology: Integration & Application option at World campus; Information Technology: Integration & Application option not accepting new students at World Campus

Information Technology, B.S. (University College) (ITSUC_BS)

Effective Summer 2023:

- Custom Information Technology Option added to Greater Allegheny campus

Integrative Arts, B.A. (Altoona) (IARAL_BA)

Effective Fall 2023:

- Program phased out at Penn State Altoona, The Altoona College

Journalism, B.A. (JOURN_BA)

Effective Spring 2024:

- Removed Requirement that students must select at least 72 credits in courses outside the Bellisario College of Communications
- Added COMM 362, COMM 364 to Additional Courses in the Broadcast Journalism Option
- Removed COMM 475, COMM 407C from Additional Courses in the Broadcast Journalism Option
- Added COMM 362, COMM 364 to Additional Courses in the Digital and Print Journalism Option
- Removed COMM 475, COMM 407C from Additional Courses in the Digital and Print Journalism Option
- Added COMM 362, COMM 364 to Additional Courses in the Photojournalism Option
- Removed COMM 475, COMM 407C from Additional Courses in the Photojournalism Option

Keystone Certificate for Integrative Humanities, Certificate (KCIHNM_UCT)

Effective Spring 2024:

- New certificate added

Kinesiology, B.S. (Health and Human Development, Altoona, Berks, Capital) (KINES_BS, KINAL_BS, KINBK_BS, KINCA_BS)

Effective Summer 2023:

- Revised Program Description
- Changed Electives from 0-2 credits to 0-16 credits
- Changed Requirements for the Major from 100-108 credits to 80-108 credits
- Added NUTR 407, KINES 402, KINES 405N, KINES 419, KINES 423, KINES 426, KINES 427, KINES 428, KINES 429, KINES 430W, KINES 431, KINES 454, KINES 493W, KINES 495D, KINES 499 to Supporting Courses and Related Areas in the Applied Exercise and Health Option

- Changed Movement Science Option from 56-58 credits to 40-42 credits
- Changed KINES 495B from 6 credits to 3 credits in Supporting Courses and Related Areas in the Movement Science Option
- Removed PHYS 251 from Prescribed Courses in the Movement Science Option
- Removed KINES 400, KINES 410, KINES 411, KINES 419, KINES 420, KINES 421, KINES 422, KINES 423, KINES 424, KINES 425W, KINES 426, KINES 427, KINES 428, KINES 429, KINES 430W, KINES 439W, KINES 440, KINES 441, KINES 442, KINES 445, KINES 446, KINES 447W, KINES 452, KINES 453, KINES 454, KINES 455, KINES 456, KINES 457, KINES 458, KINES 459, KINES 460, KINES 463, KINES 465, KINES 467, KINES 471, KINES 481W, KINES 483, KINES 484, KINES 485, KINES 488, KINES 492W, KINES 493, KINES 493W, KINES 495E, KINES 499 from Additional Courses in the Movement Science Option
- Removed Supporting Courses and Related Areas in the Movement Science Option
- Changed Exercise Science Option from 55-58 credits to 52-55 credits
- Removed KINES 420 from Prescribed Courses in Exercise Science Option

Legal Studies, Minor (LEGST_UMNR)

Effective Spring 2024:

- New minor added

Mathematical Sciences, B.S. (MASC_BS)

Effective Summer 2023:

- Added Entrance to Major Requirements for Data Science Option
- Changed General Education credits included in Requirements for the Major from 9-18 credits to 9-21 credits
- Changed Common Requirements for the Major from 20-21 credits to 20 credits
- Changed Prescribed Courses for the Major from 20-21 credits to 20 credits
- Changed MATH 311W from 3-4 credits to 3 credits in Prescribed Courses for the Major
- Changed General Mathematical Sciences Option from 64-65 credits to 64 credits
- Decreased Prescribed Courses for the General Mathematical Sciences Option from 31-32 credits to 25 credits
- Changed MATH 220 from 2-3 credits to 2 credits in Prescribed Courses for the General Mathematical Sciences Option
- Removed CMPSC 121, MATH 318/STAT 318, from Prescribed Courses for the General Mathematical Sciences Option
- Increased Additional Courses for the General Mathematical Sciences Option from 0 credits to 6 credits
- Added CMPSC 121, CMPSC 131, STAT 318/MATH 318, STAT 414/MATH 414 to Additional Courses for the General Mathematical Sciences Option
- Changed 200-level or above course requirement to 100-400 level courses in Supporting Courses and Related Areas in the General Mathematical Sciences Option
- Changed Secondary Education in Mathematical Sciences Option from 77-78 credits to 77 credits
- Decreased Prescribed Courses for the Secondary Education in Mathematical Sciences Option from 68-69 credits to 65 credits

- Changed MATH 220 from 2-3 credits to 2 credits in Prescribed Courses for the Secondary Education in Mathematical Sciences Option
- Removed CMPSC 121 from Prescribed Courses for the Secondary Education in Mathematical Sciences Option
- Increased Additional Courses for the Secondary Education in Mathematical Sciences Option from 0 credits to 3 credits
- Added CMPSC 121, CMPSC 131 to Additional Courses for the Secondary Education in Mathematical Sciences Option
- Added new Data Science Option

Mathematics, B.A. (Altoona) (MTAAL_BA)

Effective Fall 2023:

- Program phased out at Penn State Altoona, The Altoona College

Mathematics, B.S. (Altoona) (MTSAL_BS)

Effective Fall 2023:

- Program phased out at Penn State Altoona, The Altoona College

Media Studies, B.A. (MEDIA_BA)

Effective Spring 2024:

- Revised Program Description
- Removed Requirement that students must select at least 72 credits in courses outside the Bellisario College of Communications
- Changed Electives from 3-15 credits to 0-12 credits
- Changed Requirements for the Major from 39-48 credits to 42-51 credits
- Increased Common Requirements for the Major from 18 credits to 21 credits
- Increased Prescribed Courses for the Major from 18 credits to 21 credits
- Added COMM 205 to Prescribed Courses for the Major
- Removed COMM 205 from Additional Courses for the International Communications Option
- Removed COMM 205 from Additional Courses for the Media Effects Option
- Removed COMM 205 from Additional Courses for the Society and Culture Option

Middle East Studies, B.A. (MESTD_BA)

Effective Spring 2024:

- Decreased Electives from 24 credits to 18 credits
- Decreased Prescribed Courses from 9 credits to 6 credits
- Increased Additional Courses from 24 credits to 27 credits
- Added CMLIT 7, HIST 165/ARAB 165/RLST 165, ASIA 186, HIST 186/JST 186, HIST 238N, HIST 245, HIST 252, HIST 260/JST 260, PLSC 267N, RLST 107 to Additional Courses
- Removed CAMS 70/JST 70/RLST 70, HIST 189/ASIA 189 from Additional Courses

Middle East Studies, Minor (MESTU_UMNR)

Effective Summer 2023:

- Increased Additional Courses from 3 credits to 18 credits
- Added ANTH 60N/JST 60N/PLSC 60N, ARAB 1, ARAB 2, ARAB 3, ARAB 110, ARAB 164/RLST 164, ARAB 165/HIST 165/RLST 165, ARAB 401, ARAB 402, ARTH 125, ASIA 186, ASIA 401, CAMS 10,

CAMS 10U, CAMS 20, CAMS 44, CAMS 90/JST 90/RLST 90, CAMS 102/JST 102/RLST 102, CAMS 104, CAMS 115, CAMS 405, CAMS 470, CMLIT 7, CMLIT 449, HEBR 1, HEBR 2, HEBR 3, HEBR 401, HEBR 402, HIST 105, HIST 106, HIST 108, HIST 140/JST 140, HIST 169, HIST 181, HIST 190, HIST 193/JST 193, HIST 238N, HIST 245, HIST 252, HIST 260, HIST 305Y, HIST 416/JST 416, HIST 423/RLST 423, HIST 443/JST 443, HIST 471Y/RLST 471Y, HIST 472, HIST 473/JST 473, PLSC 267N, PLSC 467, RLST 107 to Additional Courses

- Removed Supporting Courses and Related Areas

Nursing, B.S.N. (NURS_BSN)

Effective Spring 2024:

- Second Degree Option added to Erie campus
- Revised Program Description
- Revised Retention Requirements
- Changed General Education credits included in Requirements for the Major from 21 credits to 21-31 credits
- Changed Electives from 3-9 credits to 4-9 credits
- Changed Requirements for the Major from 87-93 credits to 90-98 credits
- Increased General Nursing Option from 57 credits to 66 credits
- Increased Prescribed Courses in the General Nursing Option from 57 credits to 63 credits
- Added CAS 100, ENGL 15 to Prescribed Courses in the General Nursing Option
- Increased Additional Courses in the General Nursing Option from 0 credits to 3 credits
- Added ENGL 202A, ENGL 202B, ENGL 202C, ENGL 202D to Additional Courses in the General Nursing Option
- Revised Supporting Courses and Related Areas in the R.N. to B.S.N. Option

Effective January 30, 2024:

- Enrollment Hold implemented for R.N. to B.S.N. option at Schuylkill campus; R.N. to B.S.N. option not accepting new students at Schuylkill campus

Nutrition Studies, Minor (NSTD_UMNR)

Effective Fall 2023:

- New program added

Philosophy, B.A. (PHIL_BA)

Effective Spring 2024:

- Revised Program Description
- Decreased Electives from 25 credits to 21 credits
- Changed total requirements for degree completion from 124 credits to 120 credits
- Removed PHIL 406 from Additional Courses in the Professional Studies Option
- Removed PHIL 406, PLSC 470W from Additional Courses in the Justice, Law, and Values Option

Political Science, B.A. (Altoona) (PLSAL_BA)

Effective Fall 2023:

- Program phased out at Penn State Altoona, The Altoona College

Politics and Public Policy, Minor (PPBPL_UMNR)

Effective Fall 2023:

- New minor added

Product Innovation Entrepreneurship, Certificate (PINENT_UCT)

Effective Fall 2023:

- New certificate added

Professional Snowsports Education, Certificate (SNWEDC_UCT)

Effective Spring 2024:

- New certificate added

Project and Supply Chain Analytics, Certificate (PRSCAN_UCT)

Effective Fall 2023:

- New certificate added

Project and Supply Chain Management, B.S. (Behrend) (PSCM_BS)

Effective Fall 2023:

- Program added to World Campus

Project and Supply Chain Management, B.S. (University College) (PSMUC_BS)

Effective May 5, 2023:

- Enrollment Hold implemented at Schuylkill, Shenango, and Wilkes-Barre campuses; program not accepting new students at Schuylkill, Shenango, and Wilkes-Barre campuses

Psychological and Social Sciences, B.S. (PSSBS_BS)

Effective Summer 2023:

- Changed Requirements for the Major from 71 credits to 56-57 credits
- Decreased Electives from 8 credits to 22-23 credits
- Decreased Additional Courses from 34 credits to 25-26 credits
- Changed PSYCH 301W from 3 credits to 4 credits in Additional Courses
- Removed ANTH 408, ANTH 421, ANTH 428, ANTH 458, HDFS 401, HDFS 415, PSYCH 404/EDPSY 450, PSYCH 406W, PSYCH 407, PSYCH 408, PSYCH 439, PSYCH 492, SOC 405, SOC 413/CRIMJ 413, SOC 423, SOC 470, SOC 471 from Additional Courses
- Added BISC 4 to Additional Courses
- Decreased Supporting Courses and Related Areas from 27 credits to 21 credits
- Revised Supporting Courses and Related Areas

Recreation, Park, and Tourism Management, B.S. (Health and Human Development) (RPTM_BS)

Effective Summer 2023:

- Community Recreation Management Option added to World Campus

Rehabilitation and Human Services, B.S. (Education, Abington, University College) (RHS_BS, RHSAB_BS, RHSUC_BS)

Effective Summer 2023:

- Revised Program Description
- Changed Electives from 17-20 credits to 17 credits
- Decreased Prescribed Courses from 55 credits to 52 credits
- Added RHS 493 to Prescribed Courses

- Removed SOC 1 from Prescribed Courses
- Increased Additional Courses from 9-11 credits to 12-14 credits
- Added CI 185 and SOC 1 to Additional Courses

Rehabilitation and Human Services, B.S. (Berks) (RHSBK_BS)
Effective Summer 2023:

- Program phased out at Penn State Berks, The Berks College

Science, B.S. (Altoona) (SCIAL_BS)
Effective Fall 2023:

- Program phased out at Penn State Altoona, The Altoona College

Secondary Education Social Studies, B.SOSC. (SESSTBSOSC)
Effective Summer 2023:

- Revised Entrance to Major Requirements
- Added EDUC 385 to Prescribed Courses
- Changed EDUC 490 to 9 credits in Prescribed Courses

Security and Risk Analysis, B.S. (Information Sciences and Technology) (SRA_BS, SRAWC_BS)
Effective Spring 2024:

- Added Intelligence and Analysis Modeling option to World Campus

Sociology, Minor (SOC_UMNR)
Effective Fall 2023:

- Revised Program Description
- Revised description of requirements for Supporting Courses and Related Areas

Spanish, B.A. (SPNBA_BA)
Effective Spring 2024:

- Changed total requirements for degree completion from 123 credits to 120 credits
- Decreased Electives from 18 credits to 15 credits
- Added SPAN 411, SPAN 417, SPAN 470/LTNST 470, SPAN 474, SPAN 491 to Additional Courses
- Added SPAN 300B, SPAN 315N, SPAN 411, SPAN 417, SPAN 470/LTNST 470, SPAN 474, SPAN 491 to Supporting Courses and Related Areas

Spanish, B.S. (SPNBS_BS)
Effective Spring 2024:

- Changed total requirements for degree completion from 122 credits to 120 credits
- Decreased Electives from 17-19 credits to 15-17 credits
- Added SPAN 300B, SPAN 315N, SPAN 411, SPAN 417, SPAN 470/LTNST 470, SPAN 474, SPAN 491 to Additional Courses for the Major
- Removed SPAN 301 from Additional Courses for the Major
- Added SPAN 411, SPAN 417, SPAN 470/LTNST 470, SPAN 474, SPAN 491 to Additional Courses for the Applied Spanish Option
- Added SPAN 411, SPAN 417, SPAN 470/LTNST 470, SPAN 474, SPAN 491 to Additional Courses for the Business Option

Surveying Engineering Technology, A. ENGT. (2SRT_AENGT)
Effective Spring 2024:

- Revised Program Description
- Changed total requirements for degree completion from 67-70 credits to 66-69 credits
- Changed Requirements for the Major from 58-61 credits to 57-60 credits
- Changed Prescribed Courses from 31 credits to 33 credits
- Added EDSGN 100, SUR 132, SUR 213, SUR 361, SUR 382, SUR 121, SUR 122, SUR 221, SUR 373W to Prescribed Courses
- Removed SUR 212, SUR 262, SUR 313, SUR 362, SUR 372W, SUR 111, SUR 162, SUR 272 from Prescribed Courses
- Changed Additional Courses from 27-30 credits to 24-27 credits
- Removed EDSGN 100, EGT 101, EGT 102, ET 2 from Additional Courses

Telecommunications and Media Industries, B.A. (TELCM_BA)
Effective Spring 2024:

- Revised Program Description
- Removed Requirement that students must select at least 72 credits in courses outside the Bellisario College of Communications
- Added COMM 403, COMM 491A to Additional Courses
- Removed COMM 383A, COMM 490 from Additional Courses
- Removed COMM 305 from Supporting Courses and Related Areas

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 are some courses listed in the Bulletin that 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. How can I do a wild card search in the search box?
 - Use an asterisk (*) in the search box as a wild card. For example, MATH* will find everything that starts with "MATH", *MATH everything that ends with "MATH", and *MATH* everything that contains "MATH".
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.