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 information 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:<p>

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

**Abbreviations, Acronyms, and Codes**

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

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<th>Explanation</th>
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<td>Special topics (course suffix; indicates different versions of the same course, e.g., CAS 100A, CAS 100B, CAS 100C)</td>
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<td>A &amp; A</td>
<td>Arts and Architecture (college abbreviation)</td>
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<tr>
<td>AA</td>
<td>Arts and Architecture (college code)</td>
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<td>AAPPM</td>
<td>Academic Administrative Policies and Procedures Manual</td>
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<td>AB</td>
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<td>AB</td>
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<td>ACUE</td>
<td>Administrative Council on Undergraduate Education</td>
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<td>AG</td>
<td>Agricultural Sciences (college code)</td>
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<td>AL</td>
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<td>AL</td>
<td>Altoona (college code)</td>
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<tr>
<td>AP</td>
<td>Advanced Placement Program</td>
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<td>APPL</td>
<td>Course requires an application with the School of Music (course characteristic)</td>
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<td>APPT</td>
<td>By appointment (class meeting time)</td>
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<td>AU</td>
<td>Audit, attended regularly (grade reporting symbol)</td>
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<tr>
<td>AUDN</td>
<td>Course requires an audition (course characteristic)</td>
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<tr>
<td>AUU</td>
<td>Audit, did not attend regularly (grade reporting symbol)</td>
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<tr>
<td>B</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., CAS 100A, CAS 100B, CAS 100C)</td>
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<td>BA</td>
<td>Business, Smeal College of (college code)</td>
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<td>BC</td>
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<td>BK</td>
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<td>BK</td>
<td>Berks (college code)</td>
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<td>BR</td>
<td>Beaver (campus code)</td>
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<td>BW</td>
<td>Brandywine (campus code)</td>
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<tr>
<td>C</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., CAS 100A, CAS 100B, CAS 100C)</td>
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<td>CA</td>
<td>Capital (college code)</td>
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<td>CALC</td>
<td>Course requires a calculator (course characteristic)</td>
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<tr>
<td>CAMP</td>
<td>College Assistance Migrant Program</td>
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<tr>
<td>CAT</td>
<td>Online catalog, University Libraries</td>
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<td>CC</td>
<td>Commonwealth Campuses</td>
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Abbreviations, Acronyms, and Codes
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<th>Acronym</th>
<th>Description</th>
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<tr>
<td>CCP</td>
<td>College Contact Person</td>
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<tr>
<td>CCRR</td>
<td>College Contact and Referral Representative</td>
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<tr>
<td>CCG</td>
<td>Council of Commonwealth Student Governments</td>
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<tr>
<td>CE</td>
<td>Continuing Education</td>
</tr>
<tr>
<td>CGPA</td>
<td>Cumulative grade-point average</td>
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<tr>
<td>CIC</td>
<td>Committee on Institutional Cooperation</td>
</tr>
<tr>
<td>CLEP</td>
<td>College-Level Examination Program</td>
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<tr>
<td>CM</td>
<td>Communications (college code)</td>
</tr>
<tr>
<td>CNCR</td>
<td>Course is scheduled concurrently with another course (course characteristic)</td>
</tr>
<tr>
<td>CNTL</td>
<td>Course is controlled (course characteristic)</td>
</tr>
<tr>
<td>COMM</td>
<td>Communications (college abbreviation)</td>
</tr>
<tr>
<td>CORD</td>
<td>Course is coordinated with other course(s) (course characteristic)</td>
</tr>
<tr>
<td>COST</td>
<td>Course requires an additional fee (course characteristic)</td>
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<tr>
<td>D</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297D, HIST 297E)</td>
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<tr>
<td>DAA</td>
<td>Dean/Director of Academic Affairs</td>
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<tr>
<td>DF</td>
<td>Deferred grade (grade reporting symbol)</td>
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<tr>
<td>DN</td>
<td>Dickinson School of Law (campus code)</td>
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<td>DS</td>
<td>DuBois (campus code)</td>
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<tr>
<td>DU</td>
<td>Division of Undergraduate Studies (college code)</td>
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<td>DUS</td>
<td>Division of Undergraduate Studies (college abbreviation)</td>
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<td>E</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297D, HIST 297E)</td>
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<td>ECoS</td>
<td>Eberly College of Science</td>
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<td>ED</td>
<td>Education (college code)</td>
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<td>EM</td>
<td>Earth and Mineral Sciences (college code)</td>
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<td>EM SC</td>
<td>Earth and Mineral Sciences (college abbreviation)</td>
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<tr>
<td>EN</td>
<td>Engineering (college code)</td>
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<td>ENGR</td>
<td>Engineering (college abbreviation)</td>
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<tr>
<td>EOP</td>
<td>Educational Opportunity Program</td>
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<td>EPR</td>
<td>Early Progress Report</td>
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<td>EPS</td>
<td>Educational Planning Survey</td>
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<td>ER</td>
<td>Behrend (campus code)</td>
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<tr>
<td>ESL</td>
<td>English as a Second Language</td>
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<tr>
<td>EVEX</td>
<td>Course has evening exams (course characteristic)</td>
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<td>F</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297F, HIST 297G)</td>
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<tr>
<td>FE</td>
<td>Fayette (campus code)</td>
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<tr>
<td>FINL</td>
<td>Course has a final exam (course characteristic)</td>
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<td>FL</td>
<td>Failure under pass/fail option (grade reporting symbol)</td>
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<td>FYS</td>
<td>First-Year Seminar</td>
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<td>G</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297F, HIST 297G)</td>
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<td>GA</td>
<td>Arts (General Education code)</td>
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<td>GA</td>
<td>Greater Allegheny (campus code)</td>
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<td>GH</td>
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<td>GHW</td>
<td>Health and Wellness (General Education code)</td>
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<td>GN</td>
<td>Graduate non-degree (college code)</td>
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<td>GN</td>
<td>Natural Sciences (General Education code)</td>
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<td>GPA</td>
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<td>GQ</td>
<td>Quantification (General Education code)</td>
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<td>GR</td>
<td>Graduate (level code)</td>
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<td>GR ND</td>
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<td>GWS</td>
<td>Writing/Speaking (General Education code)</td>
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<td>H</td>
<td>Honors course or section (course suffix)</td>
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<td>HB</td>
<td>Harrisburg (campus code)</td>
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<td>H H D</td>
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<td>HH</td>
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<td>I</td>
<td>Incomplete (grade reporting symbol)</td>
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<td>I</td>
<td>Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297I, HIST 297K)</td>
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<td>I COL</td>
<td>Intercollge programs (college abbreviation)</td>
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<td>Abbreviation</td>
<td>Description</td>
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<td>IL</td>
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<td>INCP</td>
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<td>INTG</td>
<td>Course is integrated with other courses (course characteristic)</td>
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<td>Course uses interactive video (course characteristic)</td>
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<td>J</td>
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<td>Special topics (course suffix; indicates different versions of the same course, e.g., HIST 297I, HIST 297K)</td>
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<td>MED</td>
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<td>Nondegree Regular/Conditional/High School (Classification of Undergraduate Students)</td>
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<td>Course meets at an off-campus location (course characteristic)</td>
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<td>Office of Student Aid</td>
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<td>PREQ</td>
<td>Course has prerequisites (course characteristic)</td>
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</tr>
<tr>
<td>SA</td>
<td>Satisfactory achievement (grade reporting symbol)</td>
</tr>
<tr>
<td>SATL</td>
<td>Course is offered at multiple locations via satellite uplink (course characteristic)</td>
</tr>
<tr>
<td>SC</td>
<td>Science, Eberly College of (college code)</td>
</tr>
<tr>
<td>SCIEN</td>
<td>Science, Eberly College of (college abbreviation)</td>
</tr>
<tr>
<td>SEG</td>
<td>Course is segmented (course characteristic)</td>
</tr>
<tr>
<td>SGPA</td>
<td>Semester grade-point average</td>
</tr>
<tr>
<td>SH</td>
<td>Shenango (campus code)</td>
</tr>
<tr>
<td>SI</td>
<td>Supplemental Instruction</td>
</tr>
<tr>
<td>SITE</td>
<td>Schreyer Institute for Teaching Excellence</td>
</tr>
<tr>
<td>SL</td>
<td>Schuykill (campus code)</td>
</tr>
<tr>
<td>SLO</td>
<td>Special Living Options</td>
</tr>
<tr>
<td>SOTP</td>
<td>Student Orientation and Transition Programs</td>
</tr>
<tr>
<td>SRTE</td>
<td>Student Ratings of Teacher Effectiveness</td>
</tr>
<tr>
<td>SSSP</td>
<td>Student Support Services Program</td>
</tr>
<tr>
<td>T</td>
<td>First-Year Seminar and Honors (course suffix)</td>
</tr>
<tr>
<td>TMDT</td>
<td>Course has additional meeting times/dates (course characteristic)</td>
</tr>
<tr>
<td>U</td>
<td>United States Cultures/International Cultures and Honors (course suffix)</td>
</tr>
<tr>
<td>UAO</td>
<td>Undergraduate Admissions Office</td>
</tr>
<tr>
<td>UC</td>
<td>University College (college code)</td>
</tr>
<tr>
<td>UE</td>
<td>Undergraduate Education</td>
</tr>
<tr>
<td>UFO</td>
<td>University Fellowships Office</td>
</tr>
<tr>
<td>UG</td>
<td>Undergraduate (level code)</td>
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<tr>
<td>UG ND</td>
<td>Undergraduate non-degree (college code)</td>
</tr>
<tr>
<td>UN</td>
<td>Undergraduate nondegree (college code)</td>
</tr>
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</table>
Courses Added: Effective SUMMER 2023

- BIOL 445: Molecular Ecology
- BIOL 440
- BBH 123S
- BIOL 442

Courses Added: Effective FALL 2023

- BIOL 440
- BBH 123S
- BIOL 442

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

- BIOL 445: Molecular Ecology
- BIOL 440
- BBH 123S
- BIOL 442

Courses Added: Effective FALL 2023

- BIOL 440
- BBH 123S
- BIOL 442

Common abbreviations for course attributes and suffixes can be found in the University Course Descriptions (https://bulletins.psu.edu/university-course-descriptions/) section.

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 433: Smart Manufacturing

Using this Bulletin

- University Park (campus code)
- York (campus code)
- Worthington Scranton (campus code)
- Writing Across the Curriculum (course suffix)
- Writing Across the Curriculum and United States Cultures/coursegeneric symbol)
- Writing Across the Curriculum and United States Cultures/course grade)
- Writing Across the Curriculum and United States Cultures/campus code)
- Writing Across the Curriculum and United States Cultures/suffix)
- Writing Across the Curriculum through the Internet (course offering characteristic)
- Writing Across the Curriculum and United States Cultures (General Education code)
- Writing Across the Curriculum and United States Cultures (course reporting symbol)
- Writing Across the Curriculum and United States Cultures (course grade reporting symbol)
- Writing Across the Curriculum and United States Cultures (course reporting symbol)
- Writing Across the Curriculum and United States Cultures (course and United States Cultures)
in functional analysis of gene expression using model animal systems. Students are encouraged to provide the student with a working knowledge of the processes involved by mutagenesis and gene trapping. The course objectives are (1) to understand 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 Credits)

Course 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 basic structure and function of the human reproductive system, to provide the student with 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.

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

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.
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:**
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 individualization 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 unites 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:

- 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

Changes Effective Fall 2023:

- Remove 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 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:

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

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
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 musicianship 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 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 (1-10 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 Prerequisites

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
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 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.
Old Listing Effective Through Summer 2023:

MUSIC 336: Orchestration (2 Credits) (BA)

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

Changes Effective Fall 2023:

- Change 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 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 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

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 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

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

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:

- 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 411W, 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

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.
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 the 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 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). 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 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.

MUISC 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 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

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 onedimensional 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 perspectives 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 reflective essay that connects their findings to class concepts. The time diary also includes wearing a pedometer for one week to gage 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.

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

Program Changes

Acting, B.F.A. (ACTNG_BFA)
Effective Summer 2023:

• 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

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

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 MICR 201, MICR 202, BBH 325 to Additional Courses
• Removed ANSC 479/BIOL 479, CSD 101, HDF 229H, KINES 165, KINES 394, MICR 106H from Additional Courses

Business, B.S. (University College) (BSBUC_BS)
Effective Summer 2023:

• Accounting option discontinued at Hazleton campus
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

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

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

Creative Writing, Minor (CWRIT_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
• Changed Requirements for the General Electrical Engineering Technology Option from 26 credits to 23 credits
• Added EE 413, EE 461, EE 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
• Changed Additional Courses for the General Electrical Engineering Technology Option from 32-43 credits to 33-43 credits
• Changed Additional Courses for the Major from 32-43 credits to 33-43 credits
• Changed Electrical Engineering Technology Option from 32-43 credits to 33-43 credits
• 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

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
• Decreased 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
• Changed Electrical Engineering Technology Option from 32-43 credits to 33-43 credits
• Added new Power and Automation Option

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

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

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 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

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

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

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 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. (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:
• 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

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 4950, 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 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

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

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

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

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

Sociology, Minor (SOC_UMNR)
Effective Fall 2023:
• Revised Program Description
• Revised description of requirements for 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.