SECONDARY EDUCATION, B.S. (BEHREND)

Begin Campus: Any Penn State Campus
End Campus: Erie

Program Description
Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

The following teaching options are available for majors in Secondary Education:

- Biological Science
- Chemistry
- Earth and Space Science
- English/Communication
- Environmental Education
- General Science
- Mathematics
- Physics
- Social Studies/Citizenship Education

The Secondary Education major helps prepare students for middle school and/or high school teaching positions and for other employment in fields related to their content specialties.

Biological Science Teaching Option
This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Chemistry Teaching Option
This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Earth and Space Science Teaching Option
This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

English/Communication Teaching Option
This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Environmental Education Teaching Option
This option enables the graduate to meet all of the academic requirements for a Pennsylvania teacher certification in Environmental Education when completed in conjunction with another secondary education teaching option (i.e., Biological Science Teaching option). The total number of credits required will depend primarily on that other option.

General Science Teaching Option
This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching General Science at the secondary-school level, which is issued by the Pennsylvania Department of Education. This option may only be completed in conjunction with another secondary education option (e.g., Biology); the total number of credits required will depend primarily on that other option.

Mathematics Teaching Option
This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Physics Teaching Option
This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching at the secondary-school level, which is issued by the Pennsylvania Department of Education.

Social Studies Teaching Option
This option enables the graduate to meet all of the academic requirements for the Instructional I certificate for teaching social studies courses in the secondary-school level, which is issued by the Pennsylvania Department of Education. This option has a prescribed component required for all candidates as well as a choice of concentrations that focus on a specific area. All graduates who successfully complete this program are highly qualified to teach history in secondary grades (7-12) and are eligible for PA certification in Social Studies (7-12) and/or Citizenship Education (7-12). Candidates who successfully complete the Citizenship Education concentration receive additional content preparation in selected social-studies subjects (7-12).

You Might Like This Program If...
- You are committed to public service and working with young people, and you appreciate that effective teaching demands both mastery
of subject matter knowledge and understanding learners and communities.

- In your subject-matter studies, you tend to find yourself asking: How do we know that? Is there a better way to describe it? What are we overlooking? How could I help others understand this too?

MORE INFORMATION (https://ed.psu.edu/c-and-i/undergrad/secondary-education)

Entrance to Major

Baccalaureate degree candidates must meet the following requirements 1-3 by the end of their third semester:

1. A minimum cumulative grade point average of 3.00
2. Qualify scores on Basic Skills Assessment
3. Documentation of at least 40 hours of volunteer or paid education work experience with learners of the age group the candidate plans to teach, with younger learners in the candidate's intended content area, or with adults with special needs. Part of this experience should include working with some learners who come from backgrounds that are different from the candidate's. Requirements 4-9 must be met by the end of the fourth semester when students typically participate in the Entrance-to-Major process.
4. A grade of "C" or better in all specified courses.
5. Completion of an early field experience specified by the certification program.
6. Completion of a core of Education courses specified by the certification program.
7. Completion of additional credits as specified by the certification program.
8. Completion of at least 48 semester credit hours, including ENGL 15 or ENGL 30, three credits of literature, and six credits of quantification.
9. Approval from the professional education adviser or the head of the pertinent certification program.

Degree Requirements

For the Bachelor of Science degree in Secondary Education with an option in Biological Science Teaching, a minimum of 129 credits is required; with an option in Chemistry Teaching, a minimum of 126 credits is required; with an option in Earth and Space Science Teaching, a minimum of 123 credits is required; with an option in English/Communication Teaching, a minimum of 126 credits is required; with an option in Environmental Education Teaching and a cohort option, a minimum of 123 credits is required; with an option in General Science Teaching and a cohort option, a minimum of 121 credits is required; with an option in Mathematics Teaching, a minimum of 132 credits is required; with an option in Physics Teaching, a minimum of 121 credits is required; with an option in Social Studies Teaching, a minimum of 129 credits is required.

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (http://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required.)
- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Knowledge Domains
- Arts (GA): 6 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 6 credits
- Social and Behavioral Sciences(GS): 6 credits
- Natural Sciences (GN): 9 credits

Integrative Studies (may also complete a Knowledge Domain requirement)
- Inter-Domain or Approved Linked Courses: 6 credits

12-24 of these 45 credits are included in the Requirements for the Major.

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements
- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits.
Students should consult with their college or department adviser for information on specific credit requirements.

**Quality of Work**
Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

**Limitations on Source and Time for Credit Acquisition**
The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80)). For more information, check the Suggested Academic Plan for your intended program.

**Requirements for the Major**
This includes 12-27 credits of General Education courses:

- Biological Science Teaching option, Chemistry Teaching option, Earth and Space Science Teaching option, Environmental Education Teaching option, General Science Teaching option, and Physics Teaching option—6 credits of GH courses; 9 credits of GN courses, 3-6 credits of GS courses; 6 credits of GQ courses. English/Communication Teaching option—6 credits of GH courses; 3-6 credits of GS courses. Mathematics Teaching option—6 credits of GH courses; 3-6 credits of GS courses; 6 credits of GQ courses. Social Studies Teaching option—6 credits of GH courses; 3 credits of GN courses; 6 credits of GS courses.

A grade of C or better per course is required for teacher certification.

**Common Requirements for the Major (All Options)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI 295</td>
<td>Introductory Field Experience for Teacher Preparation</td>
<td>2</td>
</tr>
<tr>
<td>EDPSY 14</td>
<td>Learning and Instruction</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 100</td>
<td>Introductory Psychology</td>
<td>3</td>
</tr>
<tr>
<td>CI 280</td>
<td>Introduction to Teaching English Language Learners</td>
<td>3</td>
</tr>
<tr>
<td>CI 495C</td>
<td>Clinical Application of Instruction – Secondary Education</td>
<td>3</td>
</tr>
<tr>
<td>SPLED 400</td>
<td>Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management</td>
<td>4</td>
</tr>
<tr>
<td>SPLED 403B</td>
<td>Evidence-Based Methods for Teaching Secondary Students with Disabilities in Inclusive Settings</td>
<td>3</td>
</tr>
<tr>
<td>CI 495E</td>
<td>Practicum in Student Teaching–Secondary Education</td>
<td>15</td>
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</table>

**Prescribed Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CHEM 110</td>
<td>Chemical Principles I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Experimental Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 112</td>
<td>Chemical Principles II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 113</td>
<td>Experimental Chemistry II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 140</td>
<td>Calculus With Analytic Geometry I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 110</td>
<td>Biology: Basic Concepts and Biodiversity</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 220W</td>
<td>Biology: Populations and Communities</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 24OW</td>
<td>Biology: Function and Development of Organisms</td>
<td>4</td>
</tr>
<tr>
<td>SCIED 411</td>
<td>Teaching Secondary Science I</td>
<td>3</td>
</tr>
<tr>
<td>SCIED 412</td>
<td>Teaching Secondary Science II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Additional Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 141</td>
<td>Calculus with Analytic Geometry II (or 4 credits of 200-level STAT GQ courses)</td>
<td>4</td>
</tr>
<tr>
<td>BMB 251</td>
<td>Molecular and Cell Biology I</td>
<td>4-6</td>
</tr>
<tr>
<td>BMB 252</td>
<td>Molecular and Cell Biology II</td>
<td></td>
</tr>
<tr>
<td>or BIOL 230W</td>
<td>Biology: Molecules and Cells</td>
<td></td>
</tr>
<tr>
<td>SELECT ONE OF THE FOLLOWING:</td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>BIOL 427</td>
<td>Evolution</td>
<td></td>
</tr>
<tr>
<td>GEOSC 204</td>
<td>Geobiology</td>
<td></td>
</tr>
<tr>
<td>GEOSC 424</td>
<td>Paleontology and Fossils</td>
<td></td>
</tr>
<tr>
<td>ANTH 21</td>
<td>Introductory Biological Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH 460</td>
<td>Human Genetics</td>
<td></td>
</tr>
<tr>
<td>SELECT ONE OF THE FOLLOWING:</td>
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<td>8</td>
</tr>
<tr>
<td>PHYS 250</td>
<td>Introductory Physics I</td>
<td></td>
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<tr>
<td>&amp; PHYS 251</td>
<td>and Introductory Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS 211</td>
<td>General Physics: Mechanics</td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 212</td>
<td>and General Physics: Electricity and Magnetism</td>
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</tbody>
</table>

**Supporting Courses and Related Areas**

<table>
<thead>
<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>PSYCH 412</td>
<td>Adolescence</td>
<td>3</td>
</tr>
<tr>
<td>or HDFS 239</td>
<td>Adolescent Development</td>
<td></td>
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</tbody>
</table>

**Supporting Courses and Related Areas: Require a grade of C or better for teacher certification**

Select 3 credits of GH courses from Literature Selection | 3       |
Select 3 credits of the following: |         |
| EDTHP 115 | Education in American Society                      | 3       |
| EDTHP 115A | Competing Rights: Issues in American Education     |         |
| 3 credits at the 400 level of any EDTHP course |         |

**Requirements for the Option**

**Requirements for the Option: Require a grade of C or better for teacher certification**

Select an option | 38-66     |

**Requirements for the Option**

**Biological Science Teaching Option (63-66 credits)**

**OPTION CURRENTLY ON HOLD at Penn State Abington; NOT ACCEPTING NEW STUDENTS**

Begin Date of Enrollment Hold: May 30, 2012
The program will continue to be delivered at University Park and Penn State Erie, The Behrend College.

A grade of C or better per course is required for teacher certification.
Supporting Courses and Related Areas
Supporting Courses and Related Areas: Require a grade of C or better for teacher certification
Select 8 credits of 300-level or 400-level BIOL or biological fields

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Chemistry Teaching Option (60-62 credits)
A grade of C or better per course is required for teacher certification.

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>CHEM 113</td>
<td>Experimental Chemistry II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 140</td>
<td>Calculus With Analytic Geometry I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 110</td>
<td>Biology: Basic Concepts and Biodiversity</td>
<td>4</td>
</tr>
<tr>
<td>MATH 141</td>
<td>Calculus With Analytic Geometry II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 211</td>
<td>General Physics: Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 212</td>
<td>General Physics: Electricity and Magnetism</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 450</td>
<td>Physical Chemistry - Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 452</td>
<td>Physical Chemistry - Quantum Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 457</td>
<td>Experimental Physical Chemistry</td>
<td>1-2</td>
</tr>
<tr>
<td>SCIED 411</td>
<td>Teaching Secondary Science I</td>
<td>3</td>
</tr>
<tr>
<td>SCIED 412</td>
<td>Teaching Secondary Science II</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Courses
Additional Courses: Require a grade of C or better for teacher certification
Select one of the following: 6-8

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 210</td>
<td>Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 402</td>
<td>Chemistry in the Environment</td>
<td></td>
</tr>
<tr>
<td>CHEM 406</td>
<td>Nuclear and Radiochemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 408</td>
<td>Computational Chemistry</td>
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</table>

Select 6 credits of the following: 6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>CHEM 410</td>
<td>Inorganic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 412</td>
<td>Transition Metal Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 423W</td>
<td>Chemical Spectroscopy</td>
<td></td>
</tr>
<tr>
<td>CHEM 425W</td>
<td>Chromatography and Electrochemistry</td>
<td></td>
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</tbody>
</table>

Earth and Space Science Teaching Option (57-62 credits)
A grade of C or better per course is required for teacher certification.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>MATH 140</td>
<td>Calculus With Analytic Geometry I (or 4 credits of 200-level STAT GQ courses)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 110</td>
<td>Biology: Basic Concepts and Biodiversity</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>Chemical Principles I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 112</td>
<td>Chemical Principles II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Experimental Chemistry I</td>
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<tr>
<td>CHEM 113</td>
<td>Experimental Chemistry II</td>
<td>1</td>
</tr>
<tr>
<td>SCIED 411</td>
<td>Teaching Secondary Science I</td>
<td>3</td>
</tr>
<tr>
<td>SCIED 412</td>
<td>Teaching Secondary Science II</td>
<td>3</td>
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Additional Courses
Additional Courses: Require a grade of C or better for teacher certification
Select one of the following: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEOSC 1</td>
<td>Physical Geology</td>
<td></td>
</tr>
<tr>
<td>GEOSC 20</td>
<td>Planet Earth</td>
<td></td>
</tr>
<tr>
<td>GEOSC 71</td>
<td>Physical Geology for Engineers</td>
<td></td>
</tr>
<tr>
<td>MATH 141</td>
<td>Calculus With Analytic Geometry II</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following: 6-8

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 250</td>
<td>Introductory Physics I and Introductory Physics II</td>
<td></td>
</tr>
<tr>
<td>SCIED 411</td>
<td>Teaching Secondary Science I</td>
<td>3</td>
</tr>
<tr>
<td>SCIED 412</td>
<td>Teaching Secondary Science II</td>
<td>3</td>
</tr>
</tbody>
</table>
PHYS 211 General Physics: Mechanics
& PHYS 212 and General Physics: Electricity and Magnetism
PHYS 211 General Physics: Mechanics
& PHYS 213 and General Physics: Fluids and Thermal Physics
GEOSC 21 Earth and Life: Origin and Evolution 3
GEOSC 204 Geobiology
Select one of the following: 3
EARTH 100 Environment Earth
EARTH 101 Natural Disasters: Hollywood vs. Reality
EARTH 103 Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century
EARTH 105 Environments of Africa: Geology and Climate Change
Select one of the following: 3-4
METEO 3 Introductory Meteorology
METEO 201 Introduction to Weather Analysis
METEO 300 Fundamentals of Atmospheric Science
ASTRO 10 Elementary Astronomy
& ASTRO 11 and Elementary Astronomy Laboratory
or ASTRO 291 Astronomical Methods and the Solar System
Select one of the following: 2-4
GEOSC 40 The Sea Around Us
GEOSC 440 Marine Geology
BIOL 435 Ecology of Lakes and Streams
BIOL 482 Coastal Biology
Supporting Courses and Related Areas
Supporting Courses and Related Areas: Require a grade of C or better for teacher certification
Select 8 credits from EARTH, GEOSC, METEO, ASTRO, other earth science field, or BIOL 427
Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.
Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.
English/Communication Teaching Option (54 credits)
A grade of C or better per course is required for teacher certification.
Note: Must complete at least 3 credits of IL and 3 credits of US Cultures selections.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENGL 221</td>
<td>British Literature to 1798</td>
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<tr>
<td>ENGL 221W</td>
<td>British Literature to 1798</td>
<td></td>
</tr>
<tr>
<td>ENGL 222</td>
<td>British Literature from 1798</td>
<td></td>
</tr>
<tr>
<td>ENGL 222W</td>
<td>British Literature from 1798</td>
<td></td>
</tr>
<tr>
<td>ENGL 231</td>
<td>American Literature to 1865</td>
<td></td>
</tr>
<tr>
<td>ENGL 231W</td>
<td>American Literature to 1865</td>
<td></td>
</tr>
<tr>
<td>ENGL 232</td>
<td>American Literature from 1865</td>
<td></td>
</tr>
<tr>
<td>ENGL 232W</td>
<td>American Literature from 1865</td>
<td></td>
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</table>

Elements of Literature:
Select 3 credits of the following: 3
ENGL 201 What is Literature
ENGL 261 Exploring Literary Forms
ENGL 262 Reading Fiction
ENGL 263 Reading Poetry
ENGL 265 Reading Nonfiction
ENGL 268 Reading Drama
ENGL 401 Studies in Genre
ENGL 401W Creative Writing Theory
COMM 261 The Literature of Journalism

400-level Comparative Literature/Literature of Diverse Cultures:
Select 3 credits of the following: 3
AMST 493 The Folktale in American Literature
CMLIT 400 Senior Seminar in Literary Criticism and Theory
CMLIT 401 The Western Literary Heritage I
CMLIT 403 Latina/o Literature and Culture
CMLIT 404 Topics in Asian Literature
CMLIT 405 Inter-American Literature
CMLIT 406 Women and World Literature
CMLIT 408 Heroic Literature
CMLIT 422 African Drama
CMLIT 423 African Novel
CMLIT 453 Narrative Theory: Film and Literature
CMLIT 470 The Modern Novel
CMLIT 480 The International Folktale
CMLIT 486 Tragedy
CMLIT 487 Comedy
CMLIT 488 Modern Continental Drama
ENGL 404 Mapping Identity, Difference, and Place
ENGL 420 Writing for the Web
ENGL 431 Black American Writers
ENGL 461 The Vernacular Roots of African American Literature
ENGL 462 Reading Black, Reading Feminist
ENGL 463 African American Autobiography
ENGL 466 African American Novel I
ENGL 467 African American Novel II
ENGL 468 African American Poetry
ENGL 469 Slavery and the Literary Imagination
ENGL 490 Women Writers and Their Worlds
ENGL 491 Studies in Genre
ENGL 492 Literature and Society

Code | Title                                           | Credits |
Language and Literature Core
Prescribed Courses
Prescribed Courses: Require a grade of C or better for teacher certification
ENGL 444 Shakespeare 3
LLED 411 Teaching Language Arts In Secondary Schools I 3
LLED 412 Teaching Language Arts in Secondary Schools II 3
LLED 420 Adolescent Literature and Literacy 3
Additional Courses
200-level British or U.S. Literature Survey:
Select 3 credits of the following: 3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ENGL 404</td>
<td>Mapping Identity, Difference, and Place (when topic appropriate and with adviser's approval)</td>
</tr>
</tbody>
</table>

### 400-level Topics in American Literature:

Select 3 credits of the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 430</td>
<td>The American Renaissance</td>
</tr>
<tr>
<td>ENGL 432</td>
<td>The American Novel to 1900</td>
</tr>
<tr>
<td>ENGL 433</td>
<td>The American Novel: 1900-1945</td>
</tr>
<tr>
<td>ENGL 434</td>
<td>Topics in American Literature</td>
</tr>
<tr>
<td>ENGL 435</td>
<td>The American Short Story</td>
</tr>
<tr>
<td>ENGL 436</td>
<td>American Fiction Since 1945</td>
</tr>
<tr>
<td>ENGL 437</td>
<td>The Poet in America</td>
</tr>
<tr>
<td>ENGL 438</td>
<td>American Drama</td>
</tr>
<tr>
<td>ENGL 439</td>
<td>American Nonfiction Prose</td>
</tr>
<tr>
<td>ENGL 492</td>
<td>American Women Writers</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>Studies in Genre</td>
</tr>
<tr>
<td>ENGL 402</td>
<td>Literature and Society</td>
</tr>
<tr>
<td>ENGL 404</td>
<td>Mapping Identity, Difference, and Place (when topic appropriate and with adviser's approval)</td>
</tr>
</tbody>
</table>

### Topics in British Literature:

Select 3 credits of the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 440</td>
<td>Studies in Shakespeare</td>
</tr>
<tr>
<td>ENGL 441</td>
<td>Chaucer</td>
</tr>
<tr>
<td>ENGL 442</td>
<td>Medieval English Literature</td>
</tr>
<tr>
<td>ENGL 443</td>
<td>The English Renaissance</td>
</tr>
<tr>
<td>ENGL 445</td>
<td>Shakespeare's Contemporaries</td>
</tr>
<tr>
<td>ENGL 446</td>
<td>Milton</td>
</tr>
<tr>
<td>ENGL 447</td>
<td>The Restoration and the Eighteenth Century</td>
</tr>
<tr>
<td>ENGL 448</td>
<td>The English Novel to Jane Austen</td>
</tr>
<tr>
<td>ENGL 450</td>
<td>The Romantics</td>
</tr>
<tr>
<td>ENGL 452</td>
<td>The Victorians</td>
</tr>
<tr>
<td>ENGL 453</td>
<td>Victorian Novel</td>
</tr>
<tr>
<td>ENGL 454</td>
<td>Modern British and Irish Drama</td>
</tr>
<tr>
<td>ENGL 455</td>
<td>Topics in British Literature</td>
</tr>
<tr>
<td>ENGL 456</td>
<td>British Fiction, 1900-1945</td>
</tr>
<tr>
<td>ENGL 457</td>
<td>British Fiction Since 1945</td>
</tr>
<tr>
<td>ENGL 458</td>
<td>Twentieth-Century Poetry</td>
</tr>
<tr>
<td>ENGL 489</td>
<td>British Women Writers</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>Studies in Genre</td>
</tr>
<tr>
<td>ENGL 402</td>
<td>Literature and Society</td>
</tr>
<tr>
<td>ENGL 404</td>
<td>Mapping Identity, Difference, and Place (when topic appropriate and with adviser's approval)</td>
</tr>
</tbody>
</table>

### Lawrence Languages, Language, and Linguistics:

Select 3 credits of the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 100</td>
<td>English Language Analysis</td>
</tr>
<tr>
<td>ENGL 407</td>
<td>History of the English Language</td>
</tr>
<tr>
<td>ENGL 417</td>
<td>The Editorial Process</td>
</tr>
<tr>
<td>LING 100</td>
<td>Foundations of Linguistics</td>
</tr>
</tbody>
</table>

### Creative Writing and/or Advanced Composition:

Select 3 credits of the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS 214</td>
<td>Speech Writing</td>
</tr>
<tr>
<td>COMM 260W</td>
<td>News Writing and Reporting</td>
</tr>
<tr>
<td>COMM 460</td>
<td>Reporting Methods</td>
</tr>
<tr>
<td>COMM 461</td>
<td>Magazine Writing</td>
</tr>
<tr>
<td>COMM 462</td>
<td>Feature Writing</td>
</tr>
<tr>
<td>COMM 467</td>
<td>News Editing and Evaluation</td>
</tr>
<tr>
<td>ENGL 212</td>
<td>Introduction to Fiction Writing</td>
</tr>
<tr>
<td>ENGL 213</td>
<td>Introduction to Poetry Writing</td>
</tr>
<tr>
<td>ENGL 215</td>
<td>Introduction to Article Writing</td>
</tr>
<tr>
<td>ENGL 281</td>
<td>Television Script Writing</td>
</tr>
<tr>
<td>ENGL 412</td>
<td>Advanced Fiction Writing</td>
</tr>
<tr>
<td>ENGL 413</td>
<td>Advanced Poetry Writing</td>
</tr>
<tr>
<td>ENGL 414</td>
<td>Biographical Writing</td>
</tr>
<tr>
<td>ENGL 418</td>
<td>Advanced Technical Writing and Editing</td>
</tr>
<tr>
<td>ENGL 419</td>
<td>Advanced Business Writing</td>
</tr>
<tr>
<td>ENGL 420</td>
<td>Writing for the Web</td>
</tr>
<tr>
<td>ENGL 421</td>
<td>Advanced Expository Writing</td>
</tr>
<tr>
<td>THEA 440</td>
<td>Principles of Playwriting</td>
</tr>
</tbody>
</table>

### Rhetoric:

Select 3 credits of the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS 215</td>
<td>Argumentation</td>
</tr>
<tr>
<td>CAS 415</td>
<td>Rhetoric of Film and Television</td>
</tr>
<tr>
<td>CAS 475</td>
<td>Studies in Public Address</td>
</tr>
<tr>
<td>COMM 467</td>
<td>News Editing and Evaluation</td>
</tr>
<tr>
<td>ENGL 409</td>
<td>Composition Theory and Practice for Teachers</td>
</tr>
<tr>
<td>ENGL 411</td>
<td>Rhetorical Theory and Practice</td>
</tr>
<tr>
<td>ENGL 470</td>
<td>Rhetorical Traditions</td>
</tr>
<tr>
<td>ENGL 471</td>
<td>Current Theories of Writing and Reading</td>
</tr>
<tr>
<td>ENGL 473</td>
<td>Rhetorical Approaches to Discourse</td>
</tr>
<tr>
<td>ENGL 474</td>
<td>Issues in Rhetoric and Composition</td>
</tr>
<tr>
<td>ENGL 487</td>
<td>Senior Seminar</td>
</tr>
</tbody>
</table>

### Media Literacies Core

**Prescribed Courses**

Prescribed Courses: Require a grade of C or better for teacher certification

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLED 480</td>
<td>Media Literacy in the Classroom</td>
</tr>
</tbody>
</table>

### Additional Courses

**Mass Media**

Select 3 credits of the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 100</td>
<td>The Mass Media and Society</td>
</tr>
<tr>
<td>COMM 118</td>
<td>Introduction to Media Effects</td>
</tr>
<tr>
<td>COMM 150</td>
<td>The Art of the Cinema</td>
</tr>
<tr>
<td>COMM 205</td>
<td>Gender, Diversity and the Media</td>
</tr>
<tr>
<td>COMM 411</td>
<td>Cultural Aspects of the Mass Media</td>
</tr>
<tr>
<td>COMM 413W</td>
<td>The Mass Media and the Public</td>
</tr>
</tbody>
</table>

**Speech and Oral Performance**

Select 3 credits of the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS 213</td>
<td>Persuasive Speaking</td>
</tr>
<tr>
<td>CAS 215</td>
<td>Argumentation</td>
</tr>
<tr>
<td>CAS 250</td>
<td>Small Group Communication</td>
</tr>
<tr>
<td>CAS 271</td>
<td>Intercultural Communication</td>
</tr>
<tr>
<td>CAS 280W</td>
<td>Storytelling and Speaking</td>
</tr>
<tr>
<td>CAS 375</td>
<td>Rhetoric and Public Controversy</td>
</tr>
<tr>
<td>CAS 422</td>
<td>Contemporary African American Communication</td>
</tr>
<tr>
<td>THEA 102</td>
<td>Fundamentals of Acting</td>
</tr>
</tbody>
</table>
### Media Literacy

Select 9 credits within one, or across several, of the following media literacy areas:

#### Multimedia:
- ART 100: Concepts and Creation in the Visual Arts
- ARTH 111: Ancient to Medieval Art
- ARTH 112: Renaissance to Modern Art
- ARTH 120: Asian Art and Architecture
- ARTH 130: Art of Africa, Oceania, and the Americas
- CAS 175: Persuasion and Propaganda
- CAS 283: Communication and Information Technology I
- CAS 415: Rhetoric of Film and Television
- CAS 483: Communication and Information Technology II

#### COMM 100: The Mass Media and Society
#### COMM 118: Introduction to Media Effects
#### COMM 120: Advertising and Society
#### COMM 150: The Art of the Cinema
#### COMM 180: Survey of Electronic Media and Telecommunications
#### COMM 205: Gender, Diversity and the Media
#### COMM 242: Basic Video/Filmmaking
#### COMM 250: Film History and Theory
#### COMM 283: Television Studio Production
#### COMM 453: Narrative Theory: Film and Literature
#### COMM 483: Communication and Information Technology II

#### Theatre:
- THEA 102: Fundamentals of Acting
- THEA 103: Fundamentals of Directing
- THEA 104: Fundamentals of Theatre Production
- THEA 112: Introduction to Musical Theatre
- THEA 120: Acting I
- THEA 130: Introduction to Theatre Scenic and Costume Technology
- THEA 131: Introduction to Theatre Sound and Lighting Technology
- THEA 189: Theatre Production Practicum
- THEA 210: Hip Hop Theatre Performance Workshop
- THEA 428: Musical Theatre Performance Studio V

#### Journalism:
- COMM 260W: News Writing and Reporting
- COMM 261: The Literature of Journalism
- COMM 269: Photojournalism
- COMM 409: News Media Ethics
- COMM 460: Reporting Methods
- COMM 461: Magazine Writing
- COMM 462: Feature Writing
- COMM 467: News Editing and Evaluation
- COMM 497: Special Topics (when topic appropriate and with adviser's approval)

Communication Arts and Sciences:
- CAS 301: Rhetorical Theory
- CAS 303: Communication Theory
- CAS 203: Interpersonal Communication
- CAS 213: Persuasive Speaking
- CAS 215: Argumentation
- CAS 250: Small Group Communication
- CAS 280W: Storytelling and Speaking
- CAS 311: Methods of Rhetorical Criticism
- CAS 375: Rhetoric and Public Controversy
- CAS 383: Culture and Technology
- CAS 411: Rhetorical Criticism
- CAS 422: Contemporary African American Communication
- CAS 455: Gender Roles in Communication
- CAS 470: Nonverbal Communication
- CAS 471: Intercultural Communication Theory and Research
- CAS 475: Studies in Public Address

#### Creative Writing:
- ENGL 210: The Process of Writing
- ENGL 212: Introduction to Fiction Writing
- ENGL 213: Introduction to Poetry Writing
- ENGL 215: Introduction to Article Writing
- ENGL 281: Television Script Writing
- ENGL 412: Advanced Fiction Writing
- ENGL 413: Advanced Poetry Writing
- ENGL 422: Fiction Workshop
- ENGL 423: Poetry Writing Workshop
- ENGL 425: Nonfiction Workshop

#### Instructional Systems:
- EDTEC 400: Introduction to Instructional Technology for Educators
- EDTEC 448: Using the Internet in the Classroom
- LDT 566: Computers as Learning Tools
- LDT 441: Design, Development, and Evaluation of Internet Resources

#### Bilingual Education and World Languages:
- APLNG 482: Introduction to Applied Linguistics
- APLNG 491: Theory: Second Language Acquisition
- APLNG 493: Teaching English as a Second Language
- CAS 271: Intercultural Communication
- CAS 471: Intercultural Communication Theory and Research
- LLED 445: Teaching English in Bilingual/Dialectal Education
- WLED 411: Methods of Teaching World Languages in Grades 1-5
- WLED 412: Methods of Teaching World Languages in Grades 6-12

A foreign language credits at the 12th credit level or above

### Environmental Education Teaching Option (55-58 credits)

A grade of C or better per course is required for teacher certification.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Prescribed Courses</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Prescribed Courses: Require a grade of C or better for teacher certification</strong></td>
<td></td>
</tr>
</tbody>
</table>
A grade of C or better per course is required for teacher certification.

General Science Teaching Option (38 credits)

must be earned for science certification.


- Science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.
- These options must be completed concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

General Science Teaching Option (38 credits)

A grade of C or better per course is required for teacher certification.

Select at least 14 credits from the cohort Teaching option Technology and Society, e.g.

Select 4 credits of an environmentally related course in Science Technology and Society.

Select at least 14 credits from the cohort Teaching option Technology and Society.

1 Select two courses (6-8 credits) in environmental law, economics, management and policy.

- ECON 428
- ERM 411
- ERM 412
- ERM 413
- WFS 410
- WFS 447
- WFS 463

2 Select 4 credits of an environmentally related course in Science Technology and Society.

- STS 47
- STS 135
- STS 420
- STS 460

3 This option may only be completed in conjunction with another secondary teaching option, such as Biology.

Note 1: This option may only be completed in conjunction with another secondary teaching option, such as Biology.

Note 2: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 3: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Mathematics Teaching Option (57-59 credits)

A grade of C or better per course is required for teacher certification.

Select one of the following:

Select one of the following:

1 Select two courses (6-8 credits) in environmental law, economics, management and policy.

- ECON 428
- ERM 411
- ERM 412
- ERM 413
- WFS 410
- WFS 447
- WFS 463

2 Select 4 credits of an environmentally related course in Science Technology and Society.

- STS 47
- STS 135
- STS 420
- STS 460

3 This option may only be completed in conjunction with another secondary teaching option, such as the Biological Science Teaching option.

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Note 3: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Mathematics Teaching Option (57-59 credits)

A grade of C or better per course is required for teacher certification.

Select one of the following:

Select one of the following:

1 Select two courses (6-8 credits) in environmental law, economics, management and policy.

- ECON 428
- ERM 411
- ERM 412
- ERM 413
- WFS 410
- WFS 447
- WFS 463

2 Select 4 credits of an environmentally related course in Science Technology and Society.

- STS 47
- STS 135
- STS 420
- STS 460

3 This option may only be completed in conjunction with another secondary teaching option, such as the Biological Science Teaching option.

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Note 3: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Mathematics Teaching Option (57-59 credits)

A grade of C or better per course is required for teacher certification.

Select one of the following:

Select one of the following:

1 Select two courses (6-8 credits) in environmental law, economics, management and policy.

- ECON 428
- ERM 411
- ERM 412
- ERM 413
- WFS 410
- WFS 447
- WFS 463

2 Select 4 credits of an environmentally related course in Science Technology and Society.

- STS 47
- STS 135
- STS 420
- STS 460

3 This option may only be completed in conjunction with another secondary teaching option, such as the Biological Science Teaching option.

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Mathematics Teaching Option (57-59 credits)

A grade of C or better per course is required for teacher certification.

Select one of the following:

Select one of the following:

1 Select two courses (6-8 credits) in environmental law, economics, management and policy.

- ECON 428
- ERM 411
- ERM 412
- ERM 413
- WFS 410
- WFS 447
- WFS 463

2 Select 4 credits of an environmentally related course in Science Technology and Society.

- STS 47
- STS 135
- STS 420
- STS 460

3 This option may only be completed in conjunction with another secondary teaching option, such as the Biological Science Teaching option.

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

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Note 3: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Mathematics Teaching Option (57-59 credits)

A grade of C or better per course is required for teacher certification.

Select one of the following:

Select one of the following:

1 Select two courses (6-8 credits) in environmental law, economics, management and policy.

- ECON 428
- ERM 411
- ERM 412
- ERM 413
- WFS 410
- WFS 447
- WFS 463

2 Select 4 credits of an environmentally related course in Science Technology and Society.

- STS 47
- STS 135
- STS 420
- STS 460

3 This option may only be completed in conjunction with another secondary teaching option, such as the Biological Science Teaching option.

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Note 3: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Mathematics Teaching Option (57-59 credits)

A grade of C or better per course is required for teacher certification.

Select one of the following:

Select one of the following:

1 Select two courses (6-8 credits) in environmental law, economics, management and policy.

- ECON 428
- ERM 411
- ERM 412
- ERM 413
- WFS 410
- WFS 447
- WFS 463

2 Select 4 credits of an environmentally related course in Science Technology and Society.

- STS 47
- STS 135
- STS 420
- STS 460

3 This option may only be completed in conjunction with another secondary teaching option, such as the Biological Science Teaching option.

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Note 3: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Mathematics Teaching Option (57-59 credits)

A grade of C or better per course is required for teacher certification.

Select one of the following:

Select one of the following:

1 Select two courses (6-8 credits) in environmental law, economics, management and policy.

- ECON 428
- ERM 411
- ERM 412
- ERM 413
- WFS 410
- WFS 447
- WFS 463

2 Select 4 credits of an environmentally related course in Science Technology and Society.

- STS 47
- STS 135
- STS 420
- STS 460

3 This option may only be completed in conjunction with another secondary teaching option, such as the Biological Science Teaching option.

Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

Note 2: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

Note 3: Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.
A grade of C or better per course is required for teacher certification.

**Physics Teaching Option (55-62 credits)**

A grade of C or better per course is required for teacher certification.

### Additional Courses

**Additional Courses: Require a grade of C or better for teacher certification**
- CMPSC 101 Introduction to C++ Programming
- or CMPSC 121 Introduction to Programming Techniques
- MATH 231 Calculus of Several Variables
- & MATH 232 and Integral Vector Calculus
- or MATH 230 Calculus and Vector Analysis

Select one of the following:
- STAT 401 Experimental Methods
- MATH 415 Introduction to Mathematical Statistics
- 3 credits of MTHED from program list
- MATH 435 Basic Abstract Algebra
- or MATH 470 Algebra for Teachers
- MATH 436 Linear Algebra
- or MATH 441 Matrix Algebra

### Supporting Courses and Related Areas

**Supporting Courses and Related Areas: Require a grade of C or better for teacher certification**

Select 6 credits from 400-level MATH or MTHED courses

### MTHED 427

Teaching Mathematics in Technology-Intensive Environments

### Supporting Courses and Related Areas

**Supporting Courses and Related Areas: Require a grade of C or better for teacher certification**

Select one concentration:
- Mathematics and the Computer Environment
- Computer Science and Applications

### Notes:

1. Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.
2. Red Cross certification in First Aid and CPR (or their equivalent) must be earned for science certification.

### Social Studies Teaching Option (57 credits)

A grade of C or better per course is required for teacher certification.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 110</td>
<td>Chemical Principles I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Experimental Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 112</td>
<td>Experimental Chemistry II</td>
<td>3</td>
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<tr>
<td>CHEM 113</td>
<td>Experimental Chemistry II</td>
<td>3</td>
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<tr>
<td>MATH 140</td>
<td>Calculus With Analytic Geometry I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 141</td>
<td>Calculus With Analytic Geometry II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 211</td>
<td>General Physics: Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 212</td>
<td>General Physics: Electricity and Magnetism</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 220</td>
<td>Matrices</td>
<td>2-3</td>
</tr>
<tr>
<td>PHYS 213</td>
<td>General Physics: Fluids and Thermal Physics</td>
<td>2</td>
</tr>
<tr>
<td>PHYS 214</td>
<td>General Physics: Wave Motion and Quantum Physics</td>
<td>2</td>
</tr>
<tr>
<td>PHYS 237</td>
<td>Introduction to Modern Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 400</td>
<td>Intermediate Electricity and Magnetism</td>
<td>3-4</td>
</tr>
<tr>
<td>PHYS 419</td>
<td>Theoretical Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>SCIED 411</td>
<td>Teaching Secondary Science I</td>
<td>3</td>
</tr>
<tr>
<td>SCIED 412</td>
<td>Teaching Secondary Science II</td>
<td>3</td>
</tr>
</tbody>
</table>

### Additional Courses

**Additional Courses: Require a grade of C or better for teacher certification**

Select one of the following:
- PHYS 457 Experimental Physics
- PHYS 402 Electronics for Scientists
- PHYS 458 Intermediate Optics
- MATH 230 Calculus and Vector Analysis

### MATH 250

Ordinary Several Variables

or MATH 251

Ordinary and Partial Differential Equations

### Supporting Courses and Related Areas

**Supporting Courses and Related Areas: Require a grade of C or better for teacher certification**

Select 6 credits of 400-level History

Select one concentration:

### Citizenship Education
Select 6 of the following:
ANTH 45N  Cultural Diversity: A Global Perspective
ECON 102  Introductory Microeconomic Analysis and Policy
ECON 302  Intermediate Microeconomic Analysis
ECON 304  Intermediate Macroeconomic Analysis
ECON 315  Labor Economics
ECON 323  Public Finance
ECON 333  International Economics
ECON 342  Industrial Organization
PLSC 3  Comparing Politics around the Globe
PLSC 7  Contemporary Political Ideologies
PLSC 14  International Relations
PLSC 110  Rights in America
PLSC 123  Ethnic and Racial Politics
PLSC 125  Pennsylvania Government and Politics
PLSC 130  American Political Campaigns and Elections
SOC 1  Introductory Sociology
Select 3 credits of the following:
GEOG 30N  Environment and Society in a Changing World
GEOG 40  World Regional Geography
GEOG 320  Urban Geography: A Global Perspective
GEOG 122  The American Scene
GEOG 123  Geography of Developing World
GEOG 124  Elements of Cultural Geography
GEOG 126  Economic Geography
GEOG 128  Geography of International Affairs
GEOG 130  Environment, Power, and Justice
GEOG 160  Mapping Our Changing World
Select 3 credits of History at the 100-level or above
SSED 200  American Heritage

Civics and Government
PLSC 3  Comparing Politics around the Globe
PLSC 14  International Relations
Select 3 credits of the following:
PLSC 7  Contemporary Political Ideologies
PLSC 110  Rights in America
PLSC 123  Ethnic and Racial Politics
PLSC 125  Pennsylvania Government and Politics
PLSC 130  American Political Campaigns and Elections
Select 6 credits of 400-level Political Science
Economics
ECON 102  Introductory Microeconomic Analysis and Policy
ECON 302  Intermediate Microeconomic Analysis
ECON 304  Intermediate Macroeconomic Analysis
Select 6 credits of 400-level Economics
Geography
Select 9 credits of Geography below the 100 level
Select 6 credits of 400-level Geography
Social Sciences
Select 9 credits of Anthropology, Psychology, and/or Sociology below the 400 level
Select 6 credits of 400-level Anthropology, Psychology, and/or Sociology

Note 1: Courses taken to meet Additional Courses and other Supporting Courses and Related Areas requirements cannot also be applied to the concentration. Different courses need to be selected for the concentration and Additional Courses and other Supporting Courses and Related Areas requirements.

Academic Advising
The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information need to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy)

Erie
Jodie Styers
Lecturer in Math Education
8 Prischak
Erie, PA 16563
814-898-6349
jls982@psu.edu

University Park
College of Education
Advising and Certification Center
228 Chambers Building
University Park, PA 16802
814-865-0488
ed@admissions.psu.edu

Suggested Academic Plan
Mathematics Teaching Option at Erie Campus
The course series listed below provides only one of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an Academic Requirements or What If report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year
Fall  Credits  Spring  Credits
MATH 140°†  4  MATH 141°†  4
ENGL 15 or 30°  3  MATH 220°  3
CMPSC 121 or 101°  3  General Education (GN)  3
PSU 7  1  General Education (GA)  3
PSYCH 100*†

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<th>General Education (GN)†</th>
<th>3 General Education (GHW)†</th>
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**Second Year**

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<tr>
<td>CAS 100*</td>
<td>3 STAT 401*</td>
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<td>MATH 230*#</td>
<td>4 MATH 310 or 436*</td>
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<td>3 CI 295*#</td>
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<td>EDPSY 14*#</td>
<td>3 ENGL 202A or 202B*</td>
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**Fourth Year**

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<td>CI 495C</td>
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<td>MATH 435 or 427 and 428</td>
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<td>Total Credits 16-17.5-18</td>
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Total Credits 133-136

* Course requires a grade of C or better for the major
† Course requires a grade of C or better for General Education
# Course is an Entrance to Major requirement

Course satisfies General Education and degree requirement

**Approved Literature (GH) Selection:**
CMLIT 1, CMLIT 2, CMLIT 3, CMLIT 4, CMLIT 5, CMLIT 6, CMLIT 10, CMLIT 11, CMLIT 12

**Chemistry Pre-Education Option at Erie Campus**
The course series listed below provides only one of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an Academic Requirements or What If report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

**First Year**

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<th>Fall</th>
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<tr>
<td>CHEM 110††</td>
<td>3 CHEM 112††</td>
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<tr>
<td>CHEM 111††</td>
<td>1 CHEM 113††</td>
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<tr>
<td>MATH 140††</td>
<td>4 MATH 141††</td>
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<td>ENGL 15 or 30†</td>
<td>3 PHYS 211††</td>
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<td>PSU 7</td>
<td>1 General Education Course</td>
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<td>General Education Course (GHW)</td>
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<td>Total Credits 16.5</td>
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**Second Year**

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<th>Spring</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 210*</td>
<td>3 CHEM 212*</td>
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</table>
### Program Notes

1. Students who have not met the admission requirement of two units of a foreign language must complete a college level one foreign language within their first 60 credits.

2. Scheduling patterns for courses not taught each semester: Some major requirement will be offered only once a year or every other year depending on demand:

   **Fall only courses include:** CHEM 210, CHEM 227, CHEM 316, CHEM 400, CHEM 413, CHEM 450, CHEM 454, CHEM 457, CHEM 495, CHEM 496, CHEM 500, CHEM 525

   **Spring only courses include:** CHEM 212, CHEM 213, CHEM 431W, CHEM 440, CHEM 452

3. All first-year baccalaureate degree candidates are required to complete, during the first academic year, a seminar course. There are a variety of courses you may choose from. The list given below is not completely inclusive. If there is a new course or a technical course you feel you would like to include under this selection, please speak with your Academic Adviser or the Academic Coordinator.

4. 18 credits of supporting courses are required for the general option. There are a variety of courses you may choose from. The list given below is not completely inclusive. If there is a new course or a technical course you feel you would like to include under this selection, please speak with your Academic Adviser or the Academic Coordinator.

### Supporting Courses List

- EDSGN 100S
- BIOL 110 or higher
- CHNS 1, CHNS 2, CHNS 3
- CMPSC any course
- CMPEN any course
- FR 1, FR 2, FR 3
- GER 1, GER 2, GER 3
- MATH 200-level or higher
- MICRB 201 or MICRB 202
- PHYS 213, PHYS 214, PHYS 237, or any 400-level course
- PLET 206 or higher
- SPAN 1, SPAN 2, SPAN 3
- STAT 250 or higher

The following selections can also be used as a supporting course under the designated option:

- Pre-Education Supporting Course List
  - PSYCH 301W
  - PSYCH 253
  - PSYCH 256
  - PSYCH 445
  - PSYCH 412
  - PSYCH 416
  - PHIL 10

5. **Non-approved courses** - Some courses are not appropriate for a chemistry major and will not count toward degree requirements. These courses include, but are not limited to, those listed below:

   - Non-approved Courses List
     - BISC 1, BISC 2, BISC 3
     - BMB 1
     - CAS 126
     - CHEM 1, CHEM 3, CHEM 20, CHEM 21, CHEM 101, CHEM 202, CHEM 203
     - CMPSC 100
     - ENGL 4, ENGL 5
     - MATH 1, MATH 2, MATH 4, MATH 17, MATH 18
     - PHYS 1, PHYS 150, PHYS 151, PHYS 250, PHYS 251
     - STAT 100

### University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of ‘C’ or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.
General Science Pre-Certification Teaching Option at Erie Campus

The course series listed below provides only one of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an Academic Requirements or What If report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

### First Year

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<td>CHEM 113 ††</td>
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<td>MATH 140 ††</td>
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<td>MATH 141 ††</td>
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### Second Year

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<td>BIOL 220W or 230W (or BIOL 240W)</td>
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<td>CMPSC 121 †</td>
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<td>Fall</td>
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<td>PHYS 250 or 211 †</td>
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<td>Fall</td>
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<td>GEOSC 20</td>
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### Third Year

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<tr>
<td>Fall</td>
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<td>ENGL 202A or 202B (or ENGL 202C or ENGL 202D) ††</td>
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<td>GEOSC 40</td>
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<td>400-Level Course Science Supporting List †</td>
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<td>METEO 3 †</td>
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<td>GEOSC Course †</td>
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<td>400-Level Course Science Supporting List †</td>
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### Program Notes

1. Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
2. Scheduling patterns for courses not taught each semester - some major requirements will be offered only once every even other year.
3. Fall only courses include: CMPSC 455, MATH 455, PHYS 402, PHYS 414
4. Spring only courses include: CMPSC 456, MATH 456, PHYS 410, PHYS 420, PHYS 421, PHYS 458
5. Students must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.
6. Students must select 18 credits, with at least 9 credits at the 400-level, in one of the areas: computer sciences, life sciences, mathematical sciences, or physical sciences.
7. Students must select 18-22 credits, with at least 6 credits at the 400-level, from the program list.
8. Students must complete at least 3 credits of a writing across the curriculum credits. Note that only one credit of each of the BIOL 220W, BIOL 230W, and BIOL 240W courses can be used to meet this requirement.

### Advising Notes

**Program List Courses**

Students may select courses from nearly the entire range of the University’s course offerings, excluding the following:
- BIOL 11, BIOL 12
- BISC 1, BISC 2, BISC 3, BISC 4
- BMB 1
- CAS 126

### University Requirements and General Education Notes:

US, IL, F, and N are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GHW, GN, GA, GH, GS, and Integrative Studies categories. Foundations courses (GWS and GQ) require a grade of ‘C’ or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

### Program Notes

1. Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.
2. Scheduling patterns for courses not taught each semester - some major requirements will be offered only once every even other year.
3. Fall only courses include: CMPSC 455, MATH 455, PHYS 402, PHYS 414
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8. Students must complete at least 3 credits of a writing across the curriculum credits. Note that only one credit of each of the BIOL 220W, BIOL 230W, and BIOL 240W courses can be used to meet this requirement.

### Advising Notes

**Program List Courses**

Students may select courses from nearly the entire range of the University’s course offerings, excluding the following:
- BIOL 11, BIOL 12
- BISC 1, BISC 2, BISC 3, BISC 4
- BMB 1
- CAS 126
Background:

The course series listed below provides only one of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit. Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

**Science Supporting Courses List**

Computer Science include CENBD and CMPSC courses

Geosciences include GEOG, GEOSC, MATSC, and MATSE courses

Life Sciences include BIOL, BMB, and MICRB courses

Mathematical Sciences include MATH and STAT courses

Physical Sciences include ASTRO, CHEM, and PHYS courses

Earth and Space Pre-Certification Teaching Option at Erie Campus

The course series listed below provides only one of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an Academic Requirements or What If report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

**First Year**

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**Second Year**

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<td>CMPSC 121*</td>
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<td>ASTRO 11</td>
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<td>PHYS 251 or 212*</td>
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**Third Year**

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<td>2-3</td>
<td>World Language Level 2</td>
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<td>General Education Course</td>
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<td>General Education Course (GHW)</td>
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**Fourth Year**

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<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 250 or 200 (or MATH 230 or CMPSC 122)</td>
<td>3-4</td>
<td>400-Level Course Program List</td>
<td>3</td>
</tr>
<tr>
<td>400-Level Course Program List</td>
<td>3</td>
<td>400-Level Course Program List</td>
<td>3</td>
</tr>
<tr>
<td>METEO 3‡</td>
<td>3</td>
<td>GEOSC Course*</td>
<td>3</td>
</tr>
<tr>
<td>400-Level Course Science Supporting List</td>
<td>3</td>
<td>General Education Course</td>
<td>3</td>
</tr>
<tr>
<td>General Education Course</td>
<td>3</td>
<td>GEOG, GEOSC, MATSC, MATSE Course (any level)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 124-126**

* Course requires a grade of C or better for the major
‡ Course requires a grade of C or better for General Education
# Course is an Entrance to Major requirement
† Course satisfies General Education and degree requirement

**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum.

GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Integrative Studies courses are required for the General Education Foundation (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of C or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

**Program Notes**

1.) Students who have not met the admission requirement of two units of a high school world language must complete a college level-one world language within their first 60 credits.

2.) Scheduling patterns for courses not taught each semester - some major requirements will be offered only once every other year.

- Fall only courses include: CMPSC 455, MATH 455, PHYS 402, PHYS 414
- Spring only courses include: CMPSC 455, ME 428, MATH 456, PHYS 410, PHYS 420, PHYS 421, PHYS 458

3.) All first-year baccalaureate degree candidates are required to complete, during the first academic year, a seminar course.

4.) Students must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.
5.) For Science Supporting Courses, students must select 18 credits, with at least 9 credits at the 400-level, in one of the areas: computer sciences, life sciences, mathematical sciences, or physical sciences.

6.) Students must select 18-22 credits, with at least 6 credits at the 400-level, from the program list.

7.) Students must complete at least 3 credits of a writing across the curriculum credits. Note that only one credit of each of the BIOL 220W, BIOL 230W, and BIOL 240W courses can be used to meet this requirement.

**Advising Notes**

**Program List Courses**

Students may select courses from nearly the entire range of the University’s course offerings, **excluding the following:**

- BIOL 11, BIOL 12
- BISC 1, BISC 2, BISC 3, BISC 4
- BMB 1
- CAS 126
- CHEM 1, CHEM 3, CHEM 101, CHEM 108
- CMPSC 1, CMPSC 100, CMPSC 110
- ENGL 4, ENGL 5, ESL 4
- LLED 5, LLED 10
- MATH 1, MATH 2, MATH 3, MATH 4, MATH 17, MATH 18, MATH 21, MATH 26, MATH 30, MATH 35, MATH 36, MATH 40, MATH 81, MATH 82, MATH 83, MATH 110, MATH 111, MATH 200
- MICRB 106, MICRB 107, MICRB 120, MICRB 121A, MICRB 121B, MICRB 150, and MICRB 151x
- PHYS 1, PHYS 150, PHYS 151, PHYS 126
- STAT 100

**Science Supporting Courses List**

- Computer Science include CENBD and CMPSC courses
- Geosciences include GEOG, GEOSC, MATSC, and MATSE courses
- Life Sciences include BIOL, BMB, and MICRB courses
- Mathematical Sciences include MATH and STAT courses
- Physical Sciences include ASTRO, CHEM, and PHYS courses

**Career Paths**

Our graduates teach in public and private schools in Pennsylvania, elsewhere in the U.S., and around the world. Education is a profession, and all teachers are expected to continue studying and developing new skills throughout their careers. In most U.S. states, teacher certification is a multi-stage process, with graduate study beyond a bachelor’s degree expected early in a teacher’s career. Graduates of this program who work in public schools usually go on to earn a master’s degree. Alumni who wish to continue educational studies at the graduate level through Penn State can do so at University Park and through the University’s World Campus.

**Careers**

In addition to resources like the College’s Advising and Certification Center and Penn State Career Services, the University hosts large education career fairs in both the fall and spring semesters, which bring recruiters to campus from throughout Pennsylvania and the United States.

**Professional Resources**

- Pennsylvania State Education Association (http://www.psea.org/resources-by-profession/student-psea)
- National Council of Teachers of English (NCTE) (http://www2.ncte.org)
- National Council of Teachers of Mathematics (NCTM) (http://www.nctm.org)
- National Council for the Social Studies (NCSS) (http://www.socialstudies.org)
- National Science Teachers Association (NSTA) (http://www.nsta.org)

**Accreditation**

The College of Education educator preparation program is currently NCATE accredited and is seeking accreditation by the Council for the Accreditation of Education Preparation (CAEP) in Spring 2019. CAEP advances excellence in educator preparation through evidence-based accreditation that assures quality and supports continuous improvement to strengthen P-12 student learning.

MORE INFORMATION (https://ed.psu.edu/internal/associate-dean-undergrad/accreditation-and-program-review/Accreditation)

**Contact**

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https://ed.psu.edu/c-and-i/undergrad/secondary-education/contacts

MORE INFORMATION ABOUT CAREERS (http://studentaffairs.psu.edu/career)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (http://ed.psu.edu/c-and-i/graduate/degrees)