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 Civics & Government concentration are highly qualified to be teachers of U.S. government and civics (7-12). Candidates who successfully complete the Economics concentration are highly qualified to be teachers of economics and economic issues (7-12). Candidates who successfully complete the Geography concentration are highly qualified to be teachers of geography and global studies (7-12). Candidates who successfully complete the Social Sciences concentration receive additional content preparation to be highly qualified teachers of anthropology, psychology, or sociology (7-12). Candidates who successfully complete the Citizenship Education concentration receive additional in-depth content preparation in selected social-studies subjects (7-12).

What is Secondary Education?
The Secondary Education (SECED) major prepares graduates to teach at the middle school or high school level (grades 7-12) in English, Mathematics, Social Studies (which includes history, geography, government, and the social sciences), or a science subject (Biology, Chemistry, Earth & Space Science, or Physics). The program combines on-campus course work with clinical experiences in schools; graduates are eligible to apply for teacher licensure through the Pennsylvania Department of Education.

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. Satisfaction of the ETS Praxis CORE exam, in order to meet the Pennsylvania Department of Education Basic Skills Testing requirement.
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:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>45</td>
</tr>
<tr>
<td>Electives</td>
<td>0-4</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>83-105</td>
</tr>
</tbody>
</table>

See also Teacher Education Programs (http://www.ed.psu.edu/educ/current-students/undergraduate/certification/instructional-1).

**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:

- Additional Courses: Require a grade of C or better for teacher certification
  - Select 3 credits of GH courses from Literature Selection
  - Select 3 credits of the following:
    - EDTHP 115 Education in American Society
    - EDTHP 115A Competing Rights: Issues in American Education
    - 3 credits at the 400 level of any EDTHP course

**Requirements for the Option: Require a grade of C or better for teacher certification**
- Select an option

**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.

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prescribed Courses</strong></td>
<td></td>
<td></td>
</tr>
<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>
</tr>
</tbody>
</table>

**Additional Courses**

- Prescribed Courses: Require a grade of C or better for teacher certification
  - MATH 141 Calculus with Analytic Geometry II (or 4 credits of 200-level STAT GQ courses) | 4 |
- Additional Courses: Require a grade of C or better for teacher certification
  - BMB 251 Molecular and Cell Biology I | 4 |
  - BMB 252 Molecular and Cell Biology II | 4 |
  - or BIOL 230W Biology: Molecules and Cells | 4 |
  - Select one of the following: | 3-4 |
    - BIOL 427 Evolution
    - GEOSC 204 Geobiology
    - GEOSC 424 Paleontology and Fossils
    - ANTH 21 Introductory Biological Anthropology
    - ANTH 460 Human Genetics
  - Select one of the following: | 8 |
    - PHYS 250 Introductory Physics I
    - & PHYS 251 Introductory Physics II
    - PHYS 211 General Physics: Mechanics
    - & PHYS 212 General Physics: Electricity and Magnetism
  - Select 6 credits of the following: | 6 |

**Supporting Courses and Related Areas**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</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>
</tr>
</tbody>
</table>
Secondary Education, B.S. (Behrend)

BMB 211  Elementary Biochemistry
BMB 212  Elementary Biochemistry Laboratory
BMB 401  General Biochemistry
BMB 402  General Biochemistry
CHEM 202  Fundamentals of Organic Chemistry I
CHEM 203  Fundamentals of Organic Chemistry II
CHEM 210  Organic Chemistry I
CHEM 212  Organic Chemistry II
CHEM 213  Laboratory in Organic Chemistry

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>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prescribed Courses: Require a grade of C or better for teacher certification</td>
<td></td>
</tr>
<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>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 per course is required for teacher certification
Select one of the following: 6-8

CHEM 202  Fundamentals of Organic Chemistry I
& CHEM 203  and Fundamentals of Organic Chemistry II
CHEM 210  Organic Chemistry I
& CHEM 212  and Organic Chemistry II
& CHEM 213  and Laboratory in Organic Chemistry

Select 6 credits of the following:

CHEM 402  Chemistry in the Environment
CHEM 406  Nuclear and Radiochemistry
CHEM 408  Computational Chemistry

CHEM 410  Inorganic Chemistry
CHEM 412  Transition Metal Chemistry
CHEM 423W  Chemical Spectroscopy
CHEM 425W  Chromatography and Electrochemistry

Supporting Courses and Related Areas
Supporting Courses and Related Areas: Require a grade of C or better for teacher certification
Select 6 credits in CHEM or chemistry-related fields at the 200 level or higher ¹

¹ Select 6 credits in CHEM or chemistry-related fields at the 200 level or higher, e.g.
- BMB 211 and BMB 212
- BMB 251
- BMB 252
- MICRB 251
- FDSC 400
- ANSC 301
- NUTR 251
- CHEM
- CHE

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>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Prescribed Courses: Require a grade of C or better for teacher certification</td>
<td></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>CHEM 110</td>
<td>Chemical Principles I</td>
<td>3</td>
</tr>
<tr>
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<td>CHEM 111</td>
<td>Experimental Chemistry I</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>
</tr>
</tbody>
</table>

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

GEOSC 1  Physical Geology
GEOSC 20  Planet Earth
GEOSC 71  Physical Geology for Engineers
MATH 141  Calculus with Analytic Geometry II (or 4 credits of 200-level STAT GQ courses) 4

Select one of the following: 6-8

PHYS 250  Introductory Physics I
& PHYS 251  and Introductory Physics II
PHYS 211 & PHYS 212
General Physics: Mechanics and General Physics: Electricity and Magnetism

PHYS 211 & PHYS 213
General Physics: Mechanics and General Physics: Fluids and Thermal Physics

GEOSC 21 or GEOSC 204
Earth and Life: Origin and Evolution

Select one of the following:

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

Select one of the following:

METEO 3
Introductory Meteorology

METEO 201
Introduction to Weather Analysis

METEO 300
Fundamentals of Atmospheric Science

ASTRO 10 & ASTRO 11
Elementary Astronomy and Elementary Astronomy Laboratory

or ASTRO 291
Astronomical Methods and the Solar System

Select one of the following:

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.

### Code
### Title
### Credits

#### Language and Literature Core

Prescribed Courses

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

ENGL 444
Shakespeare

LLLED 411
Teaching Language Arts in Secondary Schools I

LLLED 412
Teaching Language Arts in Secondary Schools II

LLLED 420
Adolescent Literature and Literacy

Additional Courses

200-level British or U.S. Literature Survey:

Select 3 credits of the following:

ENGL 221
British Literature to 1798

ENGL 222
British Literature from 1798

ENGL 222W
British Literature from 1798

ENGL 231
American Literature to 1865

ENGL 231W
American Literature to 1865

ENGL 232
American Literature from 1865

ENGL 232W
American Literature from 1865

Elements of Literature:

Select 3 credits of the following:

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:

AMST 493
The Folktales 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 Folktales

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 490
Studies in Genre

ENGL 502
Literature and Society

ENGL 504
Mapping Identity, Difference, and Place (when topic appropriate and with adviser's approval)
### 400-level Topics in American Literature:
Select 3 credits of the following:

<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>
</tbody>
</table>

### Topics in British Literature:
Select 3 credits of the following:

<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>
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<tr>
<td>ENGL 452</td>
<td>The Victorians</td>
</tr>
<tr>
<td>ENGL 453</td>
<td>Victorian Novel</td>
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<tr>
<td>ENGL 454</td>
<td>Modern British and Irish Drama</td>
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<tr>
<td>ENGL 455</td>
<td>Topics in British Literature</td>
</tr>
<tr>
<td>ENGL 456</td>
<td>British Fiction, 1900-1945</td>
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<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 492</td>
<td>American Women Writers</td>
</tr>
</tbody>
</table>

### Grammar, Language, and Linguistics:
Select 3 credits of the following:

<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>

### 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:

<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>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:

<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>Contemporary African American Communication</td>
</tr>
<tr>
<td>THEA 102</td>
<td>Fundamentals of Acting</td>
</tr>
</tbody>
</table>

### Rhetoric:
Select 3 credits of the following:

<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 Theory and Practice</td>
</tr>
<tr>
<td>ENGL 471</td>
<td>Rhetorical Traditions</td>
</tr>
<tr>
<td>ENGL 472</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 Literacy
Select 9 credits within one, or across several, of the following media literacy areas:

### Multimedia:
- ARTH 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
- 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 454 Documentary in Film and Television
- PHOTO 100 Introduction to Photography
- WMSN 205 Gender, Diversity and the Media

### 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
- LAS 271
- CAS 471 Intercultural Communication Theory and Research
- LL 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.
A grade of C or better per course is required for teacher certification.

**General Science Teaching Option (38 credits)**

- \[ \text{Select at least 14 credits from the cohort Teaching option} \]
- \[ \text{Select 4 credits of an environmentally related course in Science} \]
- \[ \text{management and policy, e.g.} \]
- \[ \text{Select two courses (6-8 credits) in environmental law, economics,} \]
- \[ \text{management and policy, e.g.} \]
- \[ \text{Select 4 credits of an environmentally related course in Science} \]
- \[ \text{management and policy, e.g.} \]
- \[ \text{Select at least 14 credits from the cohort Teaching option} \]

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

**General Science Teaching Option (38 credits)**

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

**Mathematics Teaching Option (57-59 credits)**

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 231</td>
<td>Calculus of Several Variables</td>
<td>3-4</td>
</tr>
<tr>
<td>or MATH 230</td>
<td>Calculus and Vector Analysis</td>
<td>2-4</td>
</tr>
<tr>
<td>or MATH 212</td>
<td>General Physics: Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>or PHYS 212</td>
<td>General Physics: Electricity and Magnetism</td>
<td>4</td>
</tr>
<tr>
<td>or PHYS 210</td>
<td>Matrices</td>
<td>2-3</td>
</tr>
<tr>
<td>or PHYS 213</td>
<td>General Physics: Fluids and Thermal Physics</td>
<td>2</td>
</tr>
<tr>
<td>or 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>
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**Additional Courses**

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 250</td>
<td>Ordinary Several Variables</td>
<td>3-4</td>
</tr>
<tr>
<td>or MATH 251</td>
<td>Ordinary Partial Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 231</td>
<td>Calculus of Several Variables</td>
<td>3-4</td>
</tr>
<tr>
<td>or MATH 230</td>
<td>Calculus and Vector Analysis</td>
<td>2-4</td>
</tr>
<tr>
<td>or MATH 212</td>
<td>General Physics: Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>or PHYS 212</td>
<td>General Physics: Electricity and Magnetism</td>
<td>4</td>
</tr>
<tr>
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<td>2-3</td>
</tr>
<tr>
<td>or PHYS 213</td>
<td>General Physics: Fluids and Thermal Physics</td>
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<tr>
<td>PHYS 237</td>
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<tr>
<td>PHYS 419</td>
<td>Theoretical Mechanics</td>
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<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>

**Supporting Courses and Related Areas**

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

Introductory biological sciences survey courses (e.g. BIOL 110) 4

**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.

### 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>ECON 104</td>
<td>Introductory Macroeconomic Analysis and Policy</td>
<td>3</td>
</tr>
<tr>
<td>GEG 10</td>
<td>Physical Geography: An Introduction</td>
<td>3</td>
</tr>
<tr>
<td>GEG 20</td>
<td>Human Geography: An Introduction</td>
<td>3</td>
</tr>
<tr>
<td>HIST 20</td>
<td>American Civilization to 1877</td>
<td>3</td>
</tr>
<tr>
<td>HIST 21</td>
<td>American Civilization Since 1877</td>
<td>3</td>
</tr>
<tr>
<td>PLSC 1</td>
<td>American Politics: Principles, Processes and Powers</td>
<td>3</td>
</tr>
<tr>
<td>SSDE 411</td>
<td>Teaching Secondary Social Studies I</td>
<td>3</td>
</tr>
<tr>
<td>SSDE 412W</td>
<td>Teaching Secondary Social Studies II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Additional Courses**

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

Select 6 credits of 400-level MATH or MTHED courses 6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 12</td>
<td>Chemical Principles II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 11</td>
<td>Experimental Chemistry I</td>
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<tr>
<td>CHEM 11</td>
<td>Experimental Chemistry II</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>
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<td>Intermediate Electricity and Magnetism</td>
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<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>

**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 6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 45N</td>
<td>Cultural Diversity: A Global Perspective</td>
<td>3</td>
</tr>
<tr>
<td>ECON 102</td>
<td>Introductory Microeconomic Analysis and Policy</td>
<td>3</td>
</tr>
<tr>
<td>GEG 30N</td>
<td>Environment and Society in a Changing World</td>
<td>3</td>
</tr>
<tr>
<td>GEG 40</td>
<td>World Regional Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEG 160</td>
<td>Mapping Our Changing World</td>
<td>3</td>
</tr>
<tr>
<td>LDT 433</td>
<td>Teaching and Learning Online in K-12 Settings</td>
<td>3</td>
</tr>
<tr>
<td>PLSC 3</td>
<td>Comparing Politics around the Globe</td>
<td>3</td>
</tr>
<tr>
<td>PLSC 14</td>
<td>International Relations</td>
<td>3</td>
</tr>
<tr>
<td>SOC 1</td>
<td>Introductory Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SSDE 200</td>
<td>American Heritage</td>
<td>3</td>
</tr>
</tbody>
</table>
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

- 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
- 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

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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

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 140*†</td>
<td>4</td>
<td>MATH 141*†</td>
<td>4</td>
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<tr>
<td>ENGL 15 or 30*§</td>
<td>3</td>
<td>MATH 220*§</td>
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<td>CMPSC 121 or 101**</td>
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<td>General Education (GN)*</td>
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<td>General Education (GA)†</td>
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<tr>
<td>Course Code</td>
<td>Title</td>
<td>Fall Credits</td>
<td>Spring Credits</td>
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</tr>
<tr>
<td>PSYCH 100*‡</td>
<td>3 General Education (GH) (See approved list below)*‡</td>
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<td>General Education (GN)</td>
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<td><strong>Second Year</strong></td>
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<tr>
<td>Fall</td>
<td>Credits</td>
<td>Spring</td>
<td>Credits</td>
</tr>
<tr>
<td>CAS 100*</td>
<td>3 STAT 401*</td>
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<tr>
<td>MATH 230*#</td>
<td>4 MATH 310 or 436*</td>
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<tr>
<td>MATH 311W†</td>
<td>3-4 EDTHP 115A (Satisfies US Culture Requirement)*‡</td>
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<tr>
<td>STAT 301†</td>
<td>3 CI 295*‡</td>
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<td>EDPSY 14*#</td>
<td>3 ENGL 202A or 202B*</td>
<td>3</td>
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<td></td>
<td>CI 280*‡</td>
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<td>16-17</td>
<td>18</td>
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<td><strong>Third Year</strong></td>
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</tr>
<tr>
<td>Fall</td>
<td>Credits</td>
<td>Spring</td>
<td>Credits</td>
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<tr>
<td>MATH 312*</td>
<td>3 MTHED 411*</td>
<td>3</td>
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<tr>
<td>MATH 435 or 427 and 428</td>
<td>3-4 MTHED 427*</td>
<td>3</td>
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<tr>
<td>SPLED 400*</td>
<td>4 MATH 310 or 436*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>STAT 414 (or General Education Course (GA))††</td>
<td>3 SPLED 403B*</td>
<td>3</td>
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<td>400-level MATH Selection</td>
<td>3 PSYCH 412 or HDFS 239*</td>
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<td>1.5 General Education (GN)†</td>
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<td>17.5-18.5</td>
<td>18</td>
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<td><strong>Fourth Year</strong></td>
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</tr>
<tr>
<td>Fall</td>
<td>Credits</td>
<td>Spring</td>
<td>Credits</td>
</tr>
<tr>
<td>MTHED 412*</td>
<td>3 CI 495E*</td>
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<tr>
<td>STAT 414 (or General Education Course (GA))††</td>
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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><strong>Total Credits 133-136</strong></td>
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</table>

* 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 requirement.

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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.

Prerequisite: satisfactory performance on the Math placement tests - i.e. placement beyond the level of MATH 22; or CHEM 101 and MATH 22 or MATH 41

**Program Notes**

1.) There are additional entrance to major requirements of PRAXIS, 40-hour Work Experience, 3.0 GPA.

2.) Additional requirements must be met to be certified - please meet with adviser regularly.

**Academic Advising Notes**

1.) Students interested in dual majoring in MTHBC B.S. alongside SECBC B.S. should carefully select their General Education (GN) courses to fulfill math major requirements. Please meet with adviser to schedule.

2.) Several courses above are taught every other year:

- the following are taught in fall of odd years: MATH 435, STAT 414, MATH 455, MATH 412
- the following are taught in fall of even years: MATH 427, MATH 428, MATH 465, MATH 455
- the following is taught in spring of odd years: MATH 436, MATH 421, MATH 449
- the following is taught in spring of even years: MATH 310, MATH 456, MATH 429, MATH 482

3.) Must complete at least 3 credits of IL and 3 credit of US Cultures selections. EDTHP 115A satisfies US Cultures. Either the GA or Literature GH class can be chosen to satisfy the IL requirement.

**Approved Literature (GH) Selection:**

- CMLIT 1, CMLIT 2, CMLIT 3, CMLIT 4, CMLIT 5, CMLIT 6, CMLIT 10, CMLIT 11, CMLIT 12, CMLIT 14

**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**

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Fall</th>
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<th>Spring</th>
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<tbody>
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<td>CHEM 110††</td>
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<td>CHEM 112††</td>
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<td>PHYS 211††</td>
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**Second Year**

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<td>Fall  Credits</td>
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<td>CHEM 452*</td>
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<td>CHEM 440*</td>
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<td>CHEM 441*</td>
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<td>CHEM 316*</td>
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<td>CHEM 494 or 496*</td>
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<td>EDPSY 14</td>
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<td>PSYCH 212 or HDFS 129†</td>
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<th>Fall Credits</th>
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<tbody>
<tr>
<td>CHEM 413*</td>
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<td>CHEM 431W*</td>
<td>4</td>
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<td>CHEM 443*</td>
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<td>CHEM 494 or 496*</td>
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<td>CHEM 395†</td>
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<td>CHEM 400-Level Course*</td>
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<td>CI 295</td>
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<td>CHEM 400-Level Selection†</td>
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<td>Supporting Courses and Related Areas</td>
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</table>

Total Credits 121-122

* 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:**

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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 foreign language must complete a college-level 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 452

**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.
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
CMPS any course
CMPS any course
FR 1, FR 2, FR 3
GER 1, GER 2, GER 3
MATH 200-level or higher
MICR 201 or MICR 202
PHYS 213, PHYS 214, PHYS 237, or any 400-level course
PLE 206 or higher
SPAN 1, SPAN 2, SPAN 3
STAT 250 or higher

The following select courses can also be used as a supporting course under the designated CHMBC 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
CMPS 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
General Science Pre-Certification Teaching Option at Erie Campus

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First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 110</td>
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<td>CHEM 111</td>
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<td>MATHE 141</td>
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<td>ENGL 15 or 30</td>
<td>3</td>
<td>BIOL 110S</td>
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<td>PSU 7</td>
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Second Year

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<th>Credits</th>
<th>Spring</th>
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<tbody>
<tr>
<td>CAS 100</td>
<td>3</td>
<td>GEOSC 2</td>
<td>3</td>
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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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<tr>
<td>PHYS 250 or 211</td>
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<td>GEOSC 20</td>
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Third Year

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<td>PHYS 213 or PHYS 214 or Elective (if following PHYS 250/251 track)</td>
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<td>World Language Level 2</td>
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<tr>
<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>ASTRO 291 or GEOG 10</td>
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Fourth Year

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<td>METEO 3†</td>
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<td>GEOSC Course†</td>
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Total Credits 124-126

* Course requires a grade of C or better for the major
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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.

3.) Students must earn at least a grade of C in each 300- and 400-level major requirement.

4.) Students must complete, during the first academic year, a seminar course 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, in one of the areas: computer sciences, life sciences, mathematical sciences, or physical sciences.

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
chemical requirements, 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**

<table>
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<th>Fall</th>
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<th>Spring</th>
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<td>CHEM 112&lt;sup&gt;#†&lt;/sup&gt;</td>
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<td>CHEM 113&lt;sup&gt;†&lt;/sup&gt;</td>
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<td>MATH 140&lt;sup&gt;#†&lt;/sup&gt;</td>
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<td>ENGL 15 or 30&lt;sup&gt;†&lt;/sup&gt;</td>
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<td>BIOL 110&lt;sup&gt;§†&lt;/sup&gt;</td>
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**Second Year**

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**Third Year**

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<tr>
<td>PHYS 213 or PHYS 214 or Elective (if following PHYS 250/251 track)&lt;sup&gt;†&lt;/sup&gt;</td>
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<td>World Language Level 2</td>
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**Fourth Year**

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<tr>
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<td>400-Level Course Program List&lt;sup&gt;*&lt;/sup&gt;</td>
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<td>400-Level Course Program List&lt;sup&gt;*&lt;/sup&gt;</td>
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<tr>
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</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 satisfies General Education and degree requirement
§ Course is an Entrance to Major 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 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.

**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.

**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.
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.

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)

**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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