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, and 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
Available at the following campuses: University Park

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
Available at the following campuses: University Park

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
Available at the following campuses: University Park

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
Available at the following campuses: University Park

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
Available at the following campuses: University Park

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
Available at the following campuses: University Park

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
Available at the following campuses: Erie, University Park

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
Available at the following campuses: University Park

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
Available at the following campuses: University Park

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

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 ABOUT SECONDARY EDUCATION (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. Qualifying scores from the PRAXIS for Reading, Writing and Mathematics
3. Documentation of at least 80 hours of volunteer or paid education work experience with learners of the age group the candidate plans to teach. Candidates for Secondary Education must document 40 of these hours with 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 129-132 credits is required (See also Teacher Education Programs (https://ed.psu.edu/certification));

<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>0-8</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>83-108</td>
</tr>
</tbody>
</table>

12-27 of the 45 credits for General Education are included in the Requirements for the Major. This includes:

- 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--3-6 credits of GA courses; 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.

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

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 82-00 and 83-00 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-00)). For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major
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>Prescribed Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CI 280</td>
<td>Introduction to Teaching English Language Learners</td>
<td>3</td>
</tr>
<tr>
<td>CI 295</td>
<td>Introductory Field Experience for Teacher Preparation</td>
<td>2</td>
</tr>
<tr>
<td>CI 495C</td>
<td>Clinical Application of Instruction – Secondary Education</td>
<td>3</td>
</tr>
<tr>
<td>CI 495E</td>
<td>Practicum in Student Teaching–Secondary Education</td>
<td>15</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>SPLED 400</td>
<td>Inclusive Special Ed Foundations: Legal,</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Characteristics, Collaboration, Assessment, Management</td>
<td></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>Additional Courses</td>
<td></td>
<td></td>
</tr>
<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>

Supporting Courses and Related Areas
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
- 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

Available at the following campuses: University Park

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

<table>
<thead>
<tr>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>Prescribed Courses</td>
<td></td>
<td></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 240W</td>
<td>Biology: Function and Development of Organisms</td>
<td>4</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</td>
<td>4</td>
</tr>
<tr>
<td>SCIED 411</td>
<td>Teaching Secondary Science</td>
<td>3</td>
</tr>
<tr>
<td>SCIED 412</td>
<td>Teaching Secondary Science</td>
<td>3</td>
</tr>
<tr>
<td>Additional Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMB 251 &amp; BMB 252</td>
<td>Molecular and Cell Biology I and Molecular and Cell Biology II</td>
<td>4-6</td>
</tr>
<tr>
<td>BIOL 230W</td>
<td>Biology: Molecules and Cells</td>
<td></td>
</tr>
<tr>
<td>MATH 141 or 4 credits of 200-level STAT GQ courses</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>3-4</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>BIOL 427</td>
<td>Evolution</td>
<td></td>
</tr>
<tr>
<td>GEO 204</td>
<td>Geobiology</td>
<td></td>
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<tr>
<td>GEO 424</td>
<td>Paleontology and Fossils</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following: 8

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

Select 6 credits of the following: 6

- 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
Earth and Space Science Teaching Option (59-62 credits)
Available at the following campuses: University Park

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

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<tr>
<td>BIOL 10</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 111</td>
<td>Experimental Chemistry I</td>
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<td>Experimental Chemistry II</td>
<td>1</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>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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Select one of the following:

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<tr>
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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 202</td>
<td>Fundamentals of Organic Chemistry I</td>
<td>6-8</td>
</tr>
<tr>
<td>&amp; CHEM 203</td>
<td>and Fundamentals of Organic Chemistry II</td>
<td></td>
</tr>
<tr>
<td>CHEM 210</td>
<td>Organic Chemistry I</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 212</td>
<td>and Organic Chemistry II</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 213</td>
<td>and Laboratory in Organic Chemistry</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>

Select 9 credits from 400 level CHEM or related field

Supporting Courses and Related Areas

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

Select 6-9 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, MICRB 442, FDSC 400, ANSC 301, NUTR 251, CHEM, CHE

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.
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>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Language and Literature Core</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Prescribed Courses</strong></td>
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<td></td>
</tr>
<tr>
<td>Prescribed Courses: Require a grade of C or better for teacher certification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 444</td>
<td>Shakespeare</td>
<td>3</td>
</tr>
<tr>
<td>LLED 411</td>
<td>Teaching Language Arts In Secondary Schools I</td>
<td>3</td>
</tr>
<tr>
<td>LLED 412</td>
<td>Teaching Language Arts in Secondary Schools II</td>
<td>3</td>
</tr>
<tr>
<td>LLED 420</td>
<td>Teaching Adolescent Literature and Literacy</td>
<td>3</td>
</tr>
</tbody>
</table>

**Additional Courses**

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

Select 3 credits of the following: 3

ENGL 221 | British Literature to 1798                      |
ENGL 221W | British Literature to 1798                     |
ENGL 222 | British Literature from 1798                   |
ENGL 222W | British Literature from 1798                   |
ENGL 231 | American Literature to 1865                    |
ENGL 231W |                                                 |
ENGL 232 | American Literature from 1865                  |
ENGL 232W |                                                 |

**Elements of Literature:**

Select 3 credits of the following: 3

COMM 261 | The Literature of Journalism                   |
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                        |

**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 401 | Studies in Genre                             |
ENGL 402 | Literature and Society                       |
ENGL 404 | Mapping Identity, Difference, and Place (when topic appropriate and with adviser's approval) |
ENGL 404 | Mapping Identity, Difference, and Place      |
ENGL 426 | Chicana and Chicano Cultural Production: Literature, Film, Music |
ENGL 431 | Black American Writers                        |
ENGL 449M | Honors Seminar in English: Pre-1800s literature |
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               |

**400-level Topics in American Literature:**

Select 3 credits of the following: 3

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

**Topics in British Literature:**

Select 3 credits of the following: 3

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

**Topics in British Literature:**

Select 3 credits of the following: 3

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

Grammar, Language, and Linguistics:
Select 3 credits of the following:  3
ENGL 100  English Language Analysis
ENGL 407  History of the English Language
ENGL 417  The Editorial Process
LING 100  Foundations of Linguistics

Creative Writing and/or Advanced Composition:
Select 3 credits of the following:  3
CAS 214  Speech Writing
COMM 260W  News Writing and Reporting
COMM 460  Reporting Methods
COMM 461  Magazine Writing
COMM 462  Feature Writing
COMM 467  News Editing and Evaluation
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 414  Biographical Writing
ENGL 416  Science Writing
ENGL 418  Advanced Technical Writing and Editing
ENGL 419  Advanced Business Writing
ENGL 420  Writing for the Web
ENGL 421  Advanced Expository Writing
THEA 440  Principles of Playwriting

Rhetoric:
Select 3 credits of the following:  3
CAS 215  Argumentation
CAS 415  Rhetoric of Film and Television
CAS 475  Studies in Public Address
COMM 467  News Editing and Evaluation
ENGL 409  Composition Theory and Practice for Teachers
ENGL 411M  Honors Seminar in English: Creative Writing
ENGL 411  Rhetorical Theory and Practice
ENGL 470  Rhetorical Theory and Practice
ENGL 471  Rhetorical Traditions
ENGL 472  Current Theories of Writing and Reading
ENGL 473  Rhetorical Approaches to Discourse
ENGL 474  Issues in Rhetoric and Composition
ENGL 487  Senior Seminar

Mass Media
Select 3 credits of the following:  3
COMM 100
COMM 118  Introduction to Media Effects
COMM 150N  The Art of the Cinema
COMM 205  Gender, Diversity and the Media
COMM 411  Cultural Aspects of the Mass Media
COMM 413W  The Mass Media and the Public

Speech and Oral Performance
Select 3 credits of the following:  3
CAS 213  Persuasive Speaking
CAS 215  Argumentation
CAS 250  Small Group Communication
CAS 271N  Intercultural Communication
CAS 280W  Storytelling and Speaking
CAS 375  Rhetoric and Public Controversy
CAS 422  Contemporary African American Communication
THEA 102  Fundamentals of Acting

Media Literacy
Select 9 credits within one, or across several, of the following media literacy areas:  9
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
CMLIT 453  Narrative Theory: Film and Literature
COMM 100
COMM 118  Introduction to Media Effects
COMM 120  Advertising and Society
COMM 150N  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 454  Documentary in Film and Television
PHOTO 100  Introduction to Photography
WMNST 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

Media Literacies Core
Prescribed Courses
Prescribed Courses: Require a grade of C or better for teacher certification
LLLED 480  Media Literacy in the Classroom  3

Additional Courses
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 203  Interpersonal Communication
CAS 213  Persuasive Speaking
CAS 215  Argumentation
CAS 250  Small Group Communication
CAS 280W  Storytelling and Speaking
CAS 303  Communication Theory
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:
EDTEC 400  Introduction to Instructional Technology for Educators
EDTEC 448  Using the Internet in the Classroom
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

Learning, Design, and Technology:
LDT 400  Introduction to Instructional Technology for Educators
or LDT 440  Educational Technology Integration

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 271N  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)
Available at the following campuses: University Park

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>BIOL 110</td>
<td>Biology: Basic Concepts and Biodiversity</td>
<td>4</td>
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<tr>
<td>BIOL 220W</td>
<td>Biology: Populations and Communities</td>
<td>4</td>
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<tr>
<td>CHEM 101</td>
<td>Introductory Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>MATH 140</td>
<td>Calculus With Analytic Geometry I</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>
<tr>
<td>SCIED 457</td>
<td>Environmental Science Education</td>
<td>3</td>
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</table>

Additional Courses

Select one of the following: 4

CHEM 20  Environmental Chemistry

CHEM 21  Environmental Chemistry Laboratory

CHEM 110  Chemical Principles I

CHEM 111  Chemical Principles I

CHEM 413  Chemical Principles I

Select one of the following: 3-4

BIOL 240W  Biology: Function and Development of Organisms

WFS 407  Ornithology

WFS 408  Mammalogy

Supporting Courses and Related Areas

Select two courses (6-8 credits) in environmental law, economics, management and policy (e.g., AEE 201, ECON 428, ERM 411, ERM 413, WFS 410, WFS 447, WFS 463) 6-8

Select 4 credits of an environmentally related course in Science Technology and Society (e.g., STS 47, STS 135, STS 420, STS 460) 4

Select at least 14 credits from the cohort Teaching option 1 14

1 This option may only be completed in conjunction with another secondary teaching option, such as the Biological Science Teaching option.
A grade of C or better per course is required for teacher certification.

Available at the following campuses: University Park

Mathematics Teaching Option (57-59 credits)

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

Code  Title  Credits

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

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<thead>
<tr>
<th>Code</th>
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<tr>
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<td>Biology: Basic Concepts and Biodiversity</td>
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<tr>
<td>CHEM 110</td>
<td>Chemical Principles I</td>
<td>3</td>
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<tr>
<td>CHEM 111</td>
<td>Experimental Chemistry I</td>
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<td>CHEM 112</td>
<td>Chemical Principles II</td>
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<tr>
<td>CHEM 113</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>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:

- BIOL 220W Biology: Populations and Communities
- BIOL 230W Biology: Molecules and Cells
- BIOL 240W Biology: Function and Development of Organisms
- PHYS 211 General Physics: Mechanics
- PHYS 212 General Physics: Electricity and Magnetism
- PHYS 250 Introductory Physics I
- PHYS 251 Introductory Physics II

Select one of the following:

- MATH 231 Calculus of Several Variables & MATH 232 and Integral Vector Calculus
- MATH 230 Calculus and Vector Analysis
- MATH 435 Basic Abstract Algebra
- MATH 470 Algebra for Teachers
- MATH 436 Linear Algebra
- MATH 441 Matrix Algebra

Select one of the following:

- MATH 415 Introduction to Mathematical Statistics
- STAT 401 Experimental Methods

3 credits of MTHED from program list

Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of C or better

Select 6 credits from 400-level MATH or MTHED courses

Physics Teaching Option (55-62 credits)

Available at the following campuses: University Park

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

Code  Title  Credits

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

<table>
<thead>
<tr>
<th>Code</th>
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<td>CHEM 110</td>
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<td>MATH 141</td>
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<td>MATH 220</td>
<td>Matrices</td>
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<tr>
<td>PHYS 211</td>
<td>General Physics: Mechanics</td>
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<tr>
<td>PHYS 212</td>
<td>General Physics: Electricity and Magnetism</td>
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</tr>
</tbody>
</table>
PHYS 213  General Physics: Fluids and Thermal Physics  2
PHYS 214  General Physics: Wave Motion and Quantum Physics  2
PHYS 237  Introduction to Modern Physics  3
PHYS 400  Intermediate Electricity and Magnetism  3
PHYS 419  Theoretical Mechanics  3
SCIED 411  Teaching Secondary Science I  3
SCIED 412  Teaching Secondary Science II  3

Additional Courses
Additional Courses: Require a grade of C or better for teacher certification
MATH 230  Calculus and Vector Analysis  2-4
or MATH 231  Calculus of Several Variables
MATH 250  Ordinary Differential Equations  3-4
or MATH 251  Ordinary and Partial Differential Equations
Select one of the following:  1-4
PHYS 402  Electronics for Scientists
PHYS 457  Experimental Physics
PHYS 458  Intermediate Optics

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)
Available at the following campuses: University Park
A grade of C or better per course is required for teacher certification.

Prescribed Courses: Require a grade of C or better for teacher certification
ECON 104  Introductory Macroeconomic Analysis and Policy  3
GEOG 30N  Environment and Society in a Changing World  3
HIST 20  American Civilization to 1877  3
HIST 21  American Civilization Since 1877  3
PLSC 1  American Politics: Principles, Processes and Powers  3
SSED 411  Teaching Secondary Social Studies I  3
SSED 412W  Teaching Secondary Social Studies II  3

Additional Courses
Additional Courses: Require a grade of C or better for teacher certification
HIST 1  Western Civilization I  3
or HIST 10  World History to 1500
HIST 2  The Western Heritage II  3
or HIST 11  World History since 1500
Select 9 credits of the following:  9
ANTH 45N  Cultural Diversity: A Global Perspective
ECON 102  Introductory Microeconomic Analysis and Policy
GEOG 6N  Maps and the Geospatial Revolution
PLSC 3  Comparing Politics around the Globe
PLSC 14  International Relations

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
Select one concentration:  15

Citizenship Education
Select 6 credits of History at the 100-level or above
Select 3 credits of the following:
ANTH 45N  Cultural Diversity: A Global Perspective
SOC 1  Introductory Sociology
Select 3 credits of the following:
ECON 102  Introductory Microeconomic Analysis and Policy
PLSC 3  Comparing Politics around the Globe
PLSC 14  International Relations
Select 3 credits of the following:
GEOG 6N  Maps and the Geospatial Revolution
GEOG 10  Physical Geography: An Introduction
GEOG 20  Human Geography: An Introduction

Civics and Government
PLSC 3  Comparing Politics around the Globe
PLSC 14  International Relations
Select 3 credits of the following:
PLSC 7N  Contemporary Political Ideologies
PLSC 10  Scientific Study of Politics
PLSC 17N  Introduction to Political Theory
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 400 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 needed 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)

### Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2019-20 academic year. To access previous years' suggested academic plans, please visit the archive (http://bulletins.psu.edu/undergraduate/archive) to view the appropriate Undergraduate Bulletin edition (Note: the archive only contain suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin).

#### 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.

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits Spring</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Fall</td>
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</tr>
<tr>
<td>MATH 140*†</td>
<td>4 MATH 141*†</td>
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<tr>
<td>ENGL 15 or 30*</td>
<td>3 MATH 220*</td>
<td>2</td>
</tr>
<tr>
<td>CMPSC 121 or 101*</td>
<td>3 General Education (GN)*</td>
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</tr>
<tr>
<td>PSU 7</td>
<td>1 General Education (GA)†</td>
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<tr>
<td>PSYCH 100*†</td>
<td>3 General Education (GH) (See approved list below)*†</td>
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</tr>
<tr>
<td>General Education (GN)†</td>
<td>3 General Education (GHW)†</td>
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<table>
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<tr>
<th>Second Year</th>
<th>Credits Spring</th>
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</thead>
<tbody>
<tr>
<td>Fall</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>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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<tr>
<td>EDPSY 14*†</td>
<td>3 ENGL 202A or 202B*</td>
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<tr>
<th>Third Year</th>
<th>Credits Spring</th>
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<tbody>
<tr>
<td>Fall</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>
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<tr>
<td>SPLED 400*†</td>
<td>4 MATH 310 or 436*</td>
<td>3</td>
</tr>
<tr>
<td>STAT 414 (or General Education Course (GA))†</td>
<td>3 SPLED 403B†</td>
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<tr>
<td>400-level MATH Selection*†</td>
<td>3 PSYCH 412 or HDFS 239†</td>
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<tr>
<td>General Education (GHW)†</td>
<td>1.5 General Education (GN)†</td>
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<tbody>
<tr>
<td>Fall</td>
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<tr>
<td>MTHED 412*†</td>
<td>3 CI 495C*†</td>
<td>15</td>
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<tr>
<td>STAT 414 (or General Education Course (GA))†</td>
<td>3 No additional coursework permitted during Student Teaching</td>
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<td>400-level MATH Selection*†</td>
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<td>CI 495C</td>
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<tr>
<td>MATH 435 or 427 and 428</td>
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<td>15-16</td>
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</table>

Total Credits 134-136

* 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

### 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.
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 Core Exam, 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 major requirements. Please meet with adviser periodically.
2.) Scheduling patterns for courses not taught each semester: Some courses are taught in spring of even years, some are taught in fall of odd years, some are taught in fall of even years, some are taught in spring of odd years.
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:

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.

<table>
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<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
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<tbody>
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<td>Fall</td>
<td></td>
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<tr>
<td>CHEM 110*</td>
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<td>CHEM 111*</td>
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<td>1</td>
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<tr>
<td>MATH 140†</td>
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<td>2</td>
</tr>
<tr>
<td>ENGL 15 or 30‡</td>
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<tr>
<td>PSU 7</td>
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<tr>
<td>General Education Course (GHW)</td>
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<tr>
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<tbody>
<tr>
<td>Fall</td>
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<td>CHEM 210*</td>
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Third Year

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<tbody>
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<td>CHEM 472*</td>
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<tr>
<td>CHEM 494 or 496‡</td>
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<td>CHEM 494 or 496‡</td>
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<td>CAS 1000†</td>
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<td>EDPSY 14</td>
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<td>PSYCH 212 or HDFS 129‡</td>
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<td>CI 295</td>
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<td>Supporting Courses and Related Areas</td>
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Fourth Year

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<td>CHEM 494 or 496‡</td>
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<td>CHEM 494 or 496‡</td>
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<td>CHEM 395†</td>
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<tr>
<td>CI 295</td>
<td>1</td>
<td>General Education Course</td>
</tr>
<tr>
<td>CHEM 400-Level Selection*</td>
<td>3</td>
<td>Supporting Courses and Related Areas</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>13</td>
<td>15-16</td>
</tr>
</tbody>
</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:
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.

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 472
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
CMPSC any course
CMPEN any course
FR 1, FR 2, FR 3
GER 1, GER 2, GER 3
MATH 200-level or higher
MCRB 201 or MCRB 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 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
CMPSC 100
ENG 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
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 Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 110**†</td>
<td>3 CHEM 112**†</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111**†</td>
<td>1 CHEM 113**†</td>
<td>1</td>
</tr>
<tr>
<td>MATH 140**†</td>
<td>4 MATH 141**†</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 15 or 30†</td>
<td>3 BIOL 110S**†</td>
<td>4</td>
</tr>
<tr>
<td>PSU 7</td>
<td>1 General Education Course</td>
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</tr>
<tr>
<td>General Education Course</td>
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</tr>
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</table>

| Total Credits | 15 | 15 |

Second Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits Spring</th>
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<tbody>
<tr>
<td>CAS 100†</td>
<td>3 GEOSC 2</td>
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<tr>
<td>BIOL 220W or 230W (or BIOL 240W)</td>
<td>4 CMPSC 121†</td>
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<tr>
<td>PHYS 250 or 211*</td>
<td>4 ASTRO 10</td>
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<tr>
<td>GEOSC 20</td>
<td>3 ASTRO 11</td>
<td>1</td>
</tr>
<tr>
<td>General Education Course (GHW)</td>
<td>1.5 PHYS 251 or 212*</td>
<td>4</td>
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<tr>
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</table>

| Total Credits | 15.5 | 16 |

Third Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits Spring</th>
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<tbody>
<tr>
<td>PHYS 213 or PHYS 214 or Elective (if following PHYS 250/251 track)†</td>
<td>2-3 World Language Level 2</td>
<td>4</td>
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<tr>
<td>General Education Course</td>
<td>3 General Education Course (GHW)</td>
<td>1.5</td>
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<tr>
<td>ENGL 202A or 202B (or ENGL 202C or ENGL 202D)†</td>
<td>3 GEOSC 40</td>
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<tr>
<td>ASTRO 291 or GEOG 10</td>
<td>3 ASTRO 292</td>
<td>3</td>
</tr>
<tr>
<td>World Language Level 1</td>
<td>4 GEOSC 10</td>
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<tr>
<td>400-Level Course Science Supporting List</td>
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| Total Credits | 15-16 | 17.5 |

Fourth Year

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

| Total Credits | 15-16 | 15 |

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 requirement.

GWS, GQ, GH, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GH, 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.
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 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

### 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

<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>MATH 140*#†</td>
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#### Second Year

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<th>Fall</th>
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<th>Spring</th>
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<tbody>
<tr>
<td>CAS 100†</td>
<td>3</td>
<td>GEOSC 2</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>ASTRO 10</td>
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<td>GEOSC 20</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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</tr>
<tr>
<td>ASTRO 291 or GEOG 10</td>
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<td>ASTRO 292</td>
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<tr>
<td>World Language Level 1</td>
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<td>GEOSC 10</td>
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</tr>
<tr>
<td></td>
<td>15-16</td>
<td>400-Level Course Science Supporting List†</td>
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#### Fourth Year

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<tbody>
<tr>
<td>STAT 250 or 200 (or MATH 230 or CMPSC 122)</td>
<td>3-4 400-Level Course Program List†</td>
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<tr>
<td>METEO 3†</td>
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<td>GEOSC Course*</td>
<td>3</td>
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<tr>
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Program Notes

1.) Students who have not met the admission requirement of both 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 every other year.
   - Fall only courses include: CMPSC 455, MATH 455, PHYS 402, PHYS 414
   - Spring only courses include: CMPSC 456, 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.
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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
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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 POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SECONDARY EDUCATION PROGRAM (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 ABOUT ACCREDITATION OF THE SECONDARY EDUCATION PROGRAM (https://ed.psu.edu/internal/associate-dean-undergrad/accreditation-and-program-review/Accreditation)

Contact

Erie

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Erie, PA 16563
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behrend-science@psu.edu

http://behrend.psu.edu/school-of-science

University Park

DEPARTMENT OF CURRICULUM AND INSTRUCTION
141 Chambers Building
University Park, PA 16802
814-865-1500
rmz101@psu.edu

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