

# SECONDARY EDUCATION, B.S. (BEHREND)

**Begin Campus:** Any Penn State Campus

**End Campus:** Erie

## Program Description

The following teaching options are available for majors in Secondary Education: Biological Science, Chemistry, Earth and Space Science, English, 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 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. A comparable program is also open to student outside the College of Education who desire certification.

### 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/academics/departments/departments-curriculum-and-instruction/undergraduate-teacher-education-pk-12/secondary-education-7-12/>)

## 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. 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 30H, 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 B.S. degree in Secondary Education with an option in Biological Science Teaching, a minimum of 126 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 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/academics/teacher-testing-certification/>)):

Requirement	Credits
General Education	45
Electives	0-20
Requirements for the Major	83-111

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, 6 credits of GS courses; 6 credits of GQ courses. English Teaching option--0-6 credits of GA courses; 6 credits of GH courses; 6 credits of GS courses, 0-3 credits of GWS. Mathematics Teaching option--6 credits of GH courses; 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. Six of these credits for any option may also satisfy the Integrative Studies requirement.

## Requirements for the Major

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

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

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
CI 280	Introduction to Teaching English Language Learners	3
CI 295	Introductory Field Experience for Teacher Preparation	2
CI 495C	Clinical Application of Instruction -- Secondary Education	3
CI 495E	Practicum in Student Teaching--Secondary Education	15
EDPSY 14	Learning and Instruction	3
PSYCH 100	Introductory Psychology	3
SPLED 400	Inclusive Special Ed Foundations: Legal, Characteristics, Collaboration, Assessment, and Management	4
SPLED 403B	Evidence-Based Methods for Teaching Secondary Students with Disabilities in Inclusive Settings	3

### Additional Courses

<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
PSYCH 412	Adolescence	3
or HDFS 239	Adolescent Development	

### Supporting Courses and Related Areas

<i>Supporting Courses and Related Areas: Require a grade of C or better for teacher certification</i>		
Select 3 credits of GH courses from Literature Selection		3
Select 3 credits of the following:		3
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

<i>Requirements for the Option: Require a grade of C or better for teacher certification</i>		
Select an option		38-66

### Requirements for the Option

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

Available at the following campuses: University Park

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
BIOL 240W	Biology: Function and Development of Organisms	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1

MATH 140	Calculus With Analytic Geometry I	4
SCIED 411W	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*

BMB 251 & BMB 252 or BIOL 230W	Molecular and Cell Biology I and Molecular and Cell Biology II Biology: Molecules and Cells	4-6
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MATH 141 or 4 credits of 200-level STAT GQ courses		4
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Select one of the following:		3-4
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ANTH 21	Introductory Biological Anthropology	
ANTH 460	Human Genetics	
BIOL 427	Evolution	
GEOSC 204	Geobiology	
GEOSC 424	Paleontology and Fossils	

Select one of the following:		8
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PHYS 211 & PHYS 212	General Physics: Mechanics and General Physics: Electricity and Magnetism	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	

Select 6 credits of the following:		6
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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		8
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*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 (55-60 credits)**

*Available at the following campuses: University Park*

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1

MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
SCIED 411W	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*

Select one of the following:		6-8
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CHEM 202 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	

Select 9 credits from 400 level CHEM or related field		9
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**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, FDSC 400, ANSC 301, NUTR 251, CHEM, CHE)		6-9
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*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.

**Earth and Space Science Teaching Option (60-63 credits)**

*Available at the following campuses: University Park*

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
ASTRO 10	Elementary Astronomy	2
ASTRO 11	Elementary Astronomy Laboratory	1
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
EARTH 100	Environment Earth	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
SCIED 411W	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*

GEOSC 1 or GEOSC 20	Physical Geology Planet Earth	3
GEOSC 21 or GEOSC 204	Earth and Life: Origin and Evolution Geobiology	3-4

Select one of the following: 8

PHYS 211 General Physics: Mechanics  
& PHYS 212 and General Physics: Electricity and Magnetism

PHYS 250 Introductory Physics I  
& PHYS 251 and Introductory Physics II

Select 3-4 credits from the following: 3-4

METEO 3 Weather Revealed: Introductory Meteorology

METEO 201 Introduction to Weather Analysis

METEO 300 Fundamentals of Atmospheric Science

Select 3-4 credits from the following: 3-4

BIOL 435 Ecology of Lakes and Streams

BIOL 482 Coastal Biology

GEOSC 40 The Sea Around Us

GEOSC 440 Marine Geology

### Supporting Courses and Related Areas

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

Select 8 credits of 200-400 level from EARTH, GEOSC, METEO, 8  
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 Teaching Option (40-42 credits)

*Available at the following campuses: University Park*

Note: Must complete at least 3 credits of IL and 3 credits of US Cultures selections.

Code	Title	Credits
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#### Prescribed Courses

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

CI 492	Identities, Power and Perceptual Pedagogies in Teaching and Learning	3
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LLED 411	Teaching Language Arts In Secondary Schools I	3
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LLED 412W	Teaching Language Arts in Secondary Schools II	3
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LLED 420	Teaching Adolescent Literature and Literacy	3
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LLED 421	Teaching Writing in Secondary Schools	3
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LLED 422	Teaching the Young Adult Literature Workshop	3
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#### Additional Courses

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

Select 1-3 credits of Grammar from the following: 1-3

APLNG 484	Discourse-Functional Grammar
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COMM 160	Basic News Writing Skills
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Select 3 credits of Speech and Oral Performance from the following: 3

CAS 100	Effective Speech
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CAS 280W	Storytelling and Speaking
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THEA 102	Fundamentals of Acting
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Select 3 credits of Shakespeare from the following: 3

ENGL 129	Shakespeare
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ENGL 405	Taking Shakespeare From Page to Stage
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ENGL 440	Studies in Shakespeare
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ENGL 444	Shakespeare
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Select 6 credits of British and American Literature from the following: 6

ENGL 221	British Literature to 1798
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ENGL 222	British Literature from 1798
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ENGL 231	American Literature to 1865
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ENGL 232	American Literature from 1865
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Select 3 credits of Multicultural Literature in English from the following: 3

CMLIT/LTNST 403	Latina/o Literature and Culture
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ENGL/AMST 135	Alternative Voices in American Literature
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ENGL/AFAM 139	African American Literature
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ENGL/WMNST 194	Women Writers
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ENGL/AAS 428	Asian American Literatures
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ENGL 431/AMST 475	Black American Writers
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ENGL/WMNST 462	Reading Black, Reading Feminist
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ENGL/AFAM 466	African American Novel I
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ENGL/AFAM 467	African American Novel II
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ENGL/AFAM 468	African American Poetry
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ENGL/WMNST 490	Women Writers and Their Worlds
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ENGL 492/AMST 476/WMNST 491	American Women Writers
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Select 3 credits of Nonprint Literature from the following: 3

AFAM/ENGL 235	From Folk Shouts and Songs to Hip Hop Poetry
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CMLIT 415	World Graphic Novels
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COMM 150N	The Art of the Cinema
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COMM 250	Film History and Theory
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COMM 411	Cultural Aspects of the Mass Media
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ENGL 136	The Graphic Novel
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THEA 100	The Art of the Theatre
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THEA 105	Introduction to Theatre
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Select 3 credits of Writing from the following: 3

ENGL 50	Introduction to Creative Writing
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ENGL 212	Introduction to Fiction Writing
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ENGL 213	Introduction to Poetry Writing
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ENGL 214	Introduction to Creative Nonfiction Writing
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ENGL 215	Introduction to General Nonfiction Writing
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### Environmental Education Teaching Option (55-58 credits)

*Available at the following campuses: University Park*

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
BIOL 220W	Biology: Populations and Communities	4
CHEM 101	Introductory Chemistry	3
MATH 140	Calculus With Analytic Geometry I	4
SCIED 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3
SCIED 457		3
<b>Additional Courses</b>		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
Select one of the following:		4
CHEM 20 & CHEM 21	Environmental Chemistry and Environmental Chemistry Laboratory	
CHEM 110 & CHEM 111	Chemical Principles I and Experimental Chemistry I	
Select one of the following:		3-4
BIOL 240W	Biology: Function and Development of Organisms	
WFS 407	Ornithology	
WFS 408	Mammalogy	
<b>Supporting Courses and Related Areas</b>		
<i>Supporting Courses and Related Areas: Require a grade of C or better for teacher certification</i>		
Select two courses (6-8 credits) in environmental law, economics, management and policy (e.g., ECON 428, ERM 411, ERM 412, ERM 413W, WFS 410, WFS 447W, WFS 463W)		6-8
Select 4 credits of an environmentally related course in Science Technology and Society (e.g., STS 100, STS 460)		4
Select at least 14 credits from the cohort Teaching option <sup>1</sup>		14

<sup>1</sup> 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)**  
**Available at the following campuses: University Park**

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1

MATH 140	Calculus With Analytic Geometry I	4
SCIED 411W	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 141 or 4 credits of 200-level STAT GQ courses	4
Select one of the following:	4

BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	

Select one of the following:		8
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PHYS 211 & PHYS 212	General Physics: Mechanics and General Physics: Electricity and Magnetism	
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PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II	
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*Note 1:* This option may only be completed in conjunction with another secondary teaching option, such as Biology.

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

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

**Mathematics Teaching Option (57-59 credits)**  
**Available at the following campuses: Erie, University Park**

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
MATH 310	Elementary Combinatorics	3
MATH 311W	Concepts of Discrete Mathematics	3-4
MATH 312	Concepts of Real Analysis	3
MATH 414	Introduction to Probability Theory	3
MATH 471	Geometry for Teachers	4
MTHED 411	Teaching Secondary Mathematics I	3
MTHED 412W	Teaching Secondary Mathematics II	3
MTHED 427	Teaching Mathematics in Technology-Intensive Environments	3

**Additional Courses**

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

CMPSC 101 or CMPSC 121	Introduction to Programming or Introduction to Programming Techniques	3
MATH 231 & MATH 232 or MATH 230	Calculus of Several Variables and Integral Vector Calculus or Calculus and Vector Analysis	4



MATH 435	Basic Abstract Algebra	3
or MATH 470	Algebra for Teachers	
MATH 436	Linear Algebra	3
or MATH 441	Matrix Algebra	
Select one of the following:		3
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	6
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**Physics Teaching Option (55-62 credits)**

*Available at the following campuses: University Park*

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2-3
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
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 411W	Teaching Secondary Science I	3
SCIED 412	Teaching Secondary Science II	3
<b>Additional Courses</b>		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
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		
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.

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better for teacher certification</i>		
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
<b>Additional Courses</b>		
<i>Additional Courses: Require a grade of C or better for teacher certification</i>		
HIST 1	Western Civilization I	3
or HIST 10	World History to 1500	
HIST 2	Western Civilization 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	
SOC 1	Introductory Sociology	
<b>Supporting Courses and Related Areas</b>		
<i>Supporting Courses and Related Areas: Require a grade of C or better for teacher certification</i>		
Select 6 credits of 400-level History		6
Select one concentration:		15
<i>Citizenship Education</i>		
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	
<i>Civics and Government</i>		
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

#### *Classics and Ancient Studies*

Select 3 credits from the following:

CAMS 1	Greek and Roman Literature
CAMS 4	Jewish and Christian Foundations
CAMS 5	Ancient Mediterranean Civilizations

Select 3 credits of 100-level Classics and Ancient Mediterranean Studies

Select 3 credits of Classics and Ancient Mediterranean Studies below the 400 level

Select 6 credits of 400-level Classics and Ancient Mediterranean Studies

#### *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

#### *Holocaust and Genocide Studies*

HIST/JST 121 History of the Holocaust 1933-1945

Select 6 credits from the following:

CMLIT/ENGL/ JST 128N The Holocaust in Film and Literature

HIST/JST 143N History of Fascism and Nazism

HIST/JST 195 Genocide in Global perspectives: Twentieth Century and beyond

Select 6 credits from the following:

HIST/JST 426 Holocaust

HIST/JST/ WMNST 439 Women and the Holocaust

JST/PLSC 450H Genocide and Tyranny

ASIA/HIST 457/JST 474 Hiroshima & the Holocaust in History and Memory

JST/PHIL/ RLST 478 Ethics After the Holocaust

#### *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.

## 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 (<https://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 and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

### Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

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

### Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

### Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 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 83-80 (<https://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.

## 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 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

## Erie

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## Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2023-24 academic year. To access previous

years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition (*Note: the archive only contains suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin*).

## Mathematics Teaching Option: Secondary Education, B.S. at Erie Campus

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

### First Year

Fall	Credits Spring	Credits
MATH 140 <sup>*#†</sup>	4 MATH 141 <sup>*#†</sup>	4
ENGL 15 or 30H <sup>*#</sup>	3 MATH 220 <sup>*#</sup>	2
CMPSC 121 or 101 <sup>*#</sup>	3 General Education (GN) <sup>†</sup>	3
PSU 7	1 General Education (GA) <sup>†</sup>	3
PSYCH 100 <sup>*#†</sup>	3 General Education (GH) (See approved list below) <sup>*#†</sup>	3
General Education (GN) <sup>†</sup>	3 General Education (GHW) <sup>†</sup>	1.5
	<b>17</b>	<b>16.5</b>

### Second Year

Fall	Credits Spring	Credits
CAS 100, CAS 100A, or CAS 100B <sup>*</sup>	3 STAT 401 <sup>*</sup>	3
MATH 230 <sup>*#</sup>	4 MATH 310 or 436 <sup>*</sup>	3
MATH 311W <sup>*</sup>	4 EDTHP 115A (Satisfies US Culture Requirement) <sup>*#†</sup>	3
STAT 301 or STAT 318 <sup>*</sup>	3 CI 295 <sup>*#</sup>	3
EDPSY 14 <sup>*#</sup>	3 ENGL 202A or 202B <sup>*</sup>	3
	CI 280 <sup>*†</sup>	3
	<b>17</b>	<b>18</b>

### Third Year

Fall	Credits Spring	Credits
MATH 312 <sup>*</sup>	3 MTHED 411 <sup>*</sup>	3
MATH 435 or 427 <b>and</b> 428	3-4 MTHED 427 <sup>*</sup>	3
SPLED 400 <sup>*</sup>	4 MATH 310 or 436 <sup>*</sup>	3
STAT 414 (or General Education Course (GA)) <sup>*†</sup>	3 SPLED 403B <sup>*</sup>	3
400-level MATH Selection <sup>*</sup>	3 PSYCH 412 or HDFS 239 <sup>*</sup>	3
General Education (GHW) <sup>†</sup>	1.5 General Education (GN) <sup>†</sup>	3
	<b>17.5-18.5</b>	<b>18</b>

### Fourth Year

Fall	Credits Spring	Credits
MTHED 412W <sup>*</sup>	3 CI 495E <sup>*</sup>	15
STAT 414 (or General Education Course (GA)) <sup>*†</sup>	3 No additional coursework permitted during Student Teaching	
400-level MATH Selection <sup>*</sup>	3	
CI 495C	3	



MATH 435 or 427 <i>and</i> 428	3-4
	<b>15-16</b>
	<b>15</b>

ENGL 226, ENGL 231, ENGL 232, ENGL 233N, ENGL 240, ENGL 261,  
ENGL 262, ENGL 263, ENGL 265, ENGL 268, CAMS 1, CAMS 45

#### **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 Cultural Diversity 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.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

- <sup>1</sup> 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 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 83S, CMLIT 100, CMLIT 101, CMLIT 105, CMLIT 106, CMLIT 107, CMLIT 108, CMLIT 110, CMLIT 111, CMLIT 120, CMLIT 141, CMLIT 153, ENGL 1, ENGL 2, ENGL 103, ENGL 104, ENGL 129, ENGL 132, ENGL 133, ENGL 134, ENGL 135, ENGL 139, ENGL 140, ENGL 145, ENGL 180, ENGL 182, ENGL 184, ENGL 185, ENGL 189, ENGL 191, ENGL 192, ENGL 194, ENGL 200, ENGL 201, ENGL 221, ENGL 222,

## Chemistry Pre-Education Option: Secondary Education, B.S. at Erie Campus

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

### First Year

Fall	Credits Spring	Credits
CHEM 110 <sup>††</sup>	3 CHEM 112 <sup>††</sup>	3
CHEM 111 <sup>††</sup>	1 CHEM 113 <sup>††</sup>	1
MATH 140 <sup>††</sup>	4 MATH 141 <sup>††</sup>	4
ENGL 15 or 30H <sup>‡</sup>	3 PHYS 211 <sup>††</sup>	4
PSU 7	1 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
General Education Course	3	
	<b>16.5</b>	<b>16.5</b>

### Second Year

Fall	Credits Spring	Credits
CHEM 210 <sup>*</sup>	3 CHEM 212 <sup>*</sup>	3
CHEM 227 <sup>*</sup>	4 CHEM 213 <sup>*</sup>	2
PHYS 212 <sup>††</sup>	4 ENGL 202C <sup>‡</sup>	3
MATH 230 <sup>*</sup>	4 MATH 250 or STAT 401 <sup>*</sup>	3
	PSYCH 100 <sup>††</sup>	3
	General Education Course	3
	<b>15</b>	<b>17</b>

### Third Year

Fall	Credits Spring	Credits
CHEM 450 <sup>*</sup>	3 CHEM 452 <sup>*</sup>	3
CHEM 457 <sup>*</sup>	1 CHEM 457 <sup>*</sup>	1
CHEM 400 <sup>*</sup>	1 CHEM 440 <sup>*</sup>	3
CHEM 472 <sup>*</sup>	3 CHEM 441 <sup>*</sup>	1
CHEM 316 <sup>*</sup>	1 CHEM 494 or 496 <sup>*</sup>	1
CAS 100A <sup>‡</sup>	3 EDPSY 14	3
PSYCH 212 or HDFS 129 <sup>†</sup>	3 CI 295	1
	Supporting Courses and Related Areas <sup>3</sup>	
	<b>15</b>	<b>13</b>

### Fourth Year

Fall	Credits Spring	Credits
CHEM 413 <sup>*</sup>	4 CHEM 431W <sup>*</sup>	4
CHEM 443 <sup>*</sup>	1 CHEM 494 or 496 <sup>*</sup>	1
CHEM 494 or 496 <sup>*</sup>	1 CHEM 395 <sup>†</sup>	1-2
EDTHP 115	3 CHEM 400-Level Course <sup>*</sup>	3
CI 295	1 General Education Course	3
CHEM 400-Level Selection <sup>*</sup>	3 Supporting Courses and Related Areas	3
	<b>13</b>	<b>15-16</b>

**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 Cultural Diversity 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.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

### 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  
MICRB 201 or MICRB 202  
PHYS 213, PHYS 214, PHYS 237, or any 400-level course  
PLET 206W 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

ENGL 4, ENGL 5

MATH 1, MATH 2, MATH 4, MATH 37, MATH 38

PHYS 1, PHYS 150, PHYS 151, PHYS 250, PHYS 251

STAT 100

## General Science Pre-Certification Teaching Option: Secondary Education, B.S. at Erie Campus

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

### First Year

Fall	Credits Spring	Credits
CHEM 110 <sup>*#†</sup>	3 CHEM 112 <sup>*#†</sup>	3
CHEM 111 <sup>#†</sup>	1 CHEM 113 <sup>*†</sup>	1
MATH 140 <sup>*#†</sup>	4 MATH 141 <sup>*†</sup>	4
ENGL 15 or 30H <sup>‡</sup>	3 BIOL 110S <sup>*#†</sup>	4
PSU 7	1 General Education Course	3
General Education Course	3	
	<b>15</b>	<b>15</b>

### Second Year

Fall	Credits Spring	Credits
CAS 100 <sup>‡</sup>	3 GEOSC 2	3
BIOL 220W or 230W (or BIOL 240W)	4 CMPSC 121 <sup>*</sup>	3
PHYS 250 or 211 <sup>*</sup>	4 ASTRO 10	2
GEOSC 20	3 ASTRO 11	1
General Education Course (GHW)	1.5 PHYS 251 or 212 <sup>*</sup>	4
	General Education Course	3
	<b>15.5</b>	<b>16</b>

### Third Year

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

### Fourth Year

Fall	Credits Spring	Credits
STAT 250 or 200 (or MATH 230 or CMPSC 122)	3-4 400-Level Course Program List <sup>*</sup>	3
400-Level Course Program List <sup>*</sup>	3 400-Level Course Program List <sup>*</sup>	3
METEO 3 <sup>†</sup>	3 GEOSC Course <sup>*</sup>	3
400-Level Course Science Supporting List <sup>*</sup>	3 General Education Course <sup>†</sup>	3

General Education Course	3 GEOG, GEOSC, MATSC, MATSE Course (any level)	3
	<b>15-16</b>	<b>15</b>

### 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 Cultural Diversity 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.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

### 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 456, ME 428, MATH 456, PHYS 410, PHYS 420, PHYS 421W, PHYS 458
- 3.) All first-year baccalaureate degree candidates are required to complete, during the first academic year, a seminar course
- 4.) Students must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.
- 5.) For Science Supporting Courses, students must select 18 credits, with at least 9 credits at the 400-level, in one of the areas: computer sciences, life sciences, mathematical sciences, or physical sciences.
- 6.) Students must select 18-22 credits, with at least 6 credits at the 400-level, from the program list.
- 7.) Students must complete at least 3 credits of a writing across the curriculum credits. Note that only one credit of each of the BIOL 220W, BIOL 230W, and BIOL 240W courses can be used to meet this requirement.

### Advising Notes

#### Program List Courses

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

BIOL 11, BIOL 12  
BISC 1, BISC 2, BISC 3, BISC 4  
BMB 1  
CAS 126  
CHEM 1, CHEM 3, CHEM 101, CHEM 108  
CMPSC 1, CMPSC 100, CMPSC 110  
ENGL 4, ENGL 5, ESL 4  
LLED 5, LLED 10

MATH 1, MATH 2, MATH 3, MATH 4, MATH 21, MATH 26, MATH 30,  
MATH 35, MATH 36, MATH 37, MATH 38, 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: Secondary Education, B.S. at Erie Campus

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

### First Year

Fall	Credits Spring	Credits
CHEM 110 <sup>*#†</sup>	3 CHEM 112 <sup>*#†</sup>	3
CHEM 111 <sup>#†</sup>	1 CHEM 113 <sup>*†</sup>	1
MATH 140 <sup>*#†</sup>	4 MATH 141 <sup>*†</sup>	4
ENGL 15 or 30H <sup>‡</sup>	3 BIOL 110S <sup>*#†</sup>	4
PSU 7	1 General Education Course	3
General Education Course	3	
	<b>15</b>	<b>15</b>

### Second Year

Fall	Credits Spring	Credits
CAS 100 <sup>‡</sup>	3 GEOSC 2	3
BIOL 220W or 230W (or BIOL 240W)	4 CMPSC 121 <sup>*</sup>	3
PHYS 250 or 211 <sup>*</sup>	4 ASTRO 10	2
GEOSC 20	3 ASTRO 11	1
General Education Course (GHW)	1.5 PHYS 251 or 212 <sup>*</sup>	4
	General Education Course	3
	<b>15.5</b>	<b>16</b>

### Third Year

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

### Fourth Year

Fall	Credits Spring	Credits
STAT 250 or 200 (or MATH 230 or CMPSC 122)	3-4 400-Level Course Program List <sup>*</sup>	3
400-Level Course Program List <sup>*</sup>	3 400-Level Course Program List <sup>*</sup>	3
METEO 3 <sup>†</sup>	3 GEOSC Course <sup>*</sup>	3
400-Level Course Science Supporting List <sup>*</sup>	3 General Education Course	3

General Education Course	3 GEOG, GEOSC, MATSC, MATSE Course (any level)	3
	<b>15-16</b>	<b>15</b>

### 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 Cultural Diversity 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.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

### 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 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 421W, PHYS 458
- 3.) All first-year baccalaureate degree candidates are required to complete, during the first academic year, a seminar course
- 4.) Students must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.
- 5.) For Science Supporting Courses, students must select 18 credits, with at least 9 credits at the 400-level, in one of the areas: computer sciences, life sciences, mathematical sciences, or physical sciences.
- 6.) Students must select 18-22 credits, with at least 6 credits at the 400-level, from the program list.
- 7.) Students must complete at least 3 credits of a writing across the curriculum credits. Note that only one credit of each of the BIOL 220W, BIOL 230W, and BIOL 240W courses can be used to meet this requirement.

### Advising Notes

#### Program List Courses

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

BIOL 11, BIOL 12  
BISC 1, BISC 2, BISC 3, BISC 4  
BMB 1  
CAS 126  
CHEM 1, CHEM 3, CHEM 101, CHEM 108  
CMPSC 1, CMPSC 100, CMPSC 110  
ENGL 4, ENGL 5, ESL 4  
LLED 5, LLED 10

MATH 1, MATH 2, MATH 3, MATH 4, MATH 21, MATH 26, MATH 30, MATH 35, MATH 36, MATH 37, MATH 38, 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 POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SECONDARY EDUCATION PROGRAM (<https://studentaffairs.psu.edu/career/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/graduate-studies-program-curriculum-and-instruction/>)

## Professional Resources

- Pennsylvania State Education Association (<https://www.psea.org/resources-by-profession/student-psea/>)
- Occupational Outlook for High School Teachers (Bureau of Labor Statistics) (<https://www.bls.gov/ooh/education-training-and-library/high-school-teachers.htm>)
- National Council of Teachers of English (NCTE) (<https://ncte.org/>)
- National Council of Teachers of Mathematics (NCTM) (<https://www.nctm.org/>)
- National Council for the Social Studies (NCSS) (<https://www.socialstudies.org>)
- National Science Teachers Association (NSTA) (<https://www.nsta.org/>)

## Accreditation

The College of Education educator preparation programs are fully accredited at the Initial and Advanced levels by the Council for the Accreditation of Educator Preparation (CAEP). The next CAEP program

review will be Fall 2026. 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/about/accreditations/>)

## Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

## Contact

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### University Park

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