# SECONDARY EDUCATION, B.S. (BEHREND) 

Begin Campus: Any Penn State Campus
End Campus: Erie

## 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 |
| Prescribed Courses |  |  |
| Prescribed Courses: Require a grade of $C$ or better for teacher certification |  |  |
| CI 280 | Introduction to Teaching English Language Learners | 3 |
| CI 295 | Introductory Field Experience for Teacher Preparation | 2 |
| Cl 495C | Clinical Application of Instruction -- Secondary Education | 3 |
| Cl 495E | Practicum in Student Teaching-Secondary Education | 5 |
| 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 |  |  |
| Additional Courses: Require a grade of $C$ or better for teacher certification |  |  |
| $\begin{aligned} & \text { PSYCH } 412 \\ & \text { or HDFS } 239 \end{aligned}$ | Adolescence <br> Adolescent Development | 3 |
| 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: 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 |  |  |
| Requirements for the Option: Require a grade of C or better for teacher certification |  |  |
| Select an option 38-66 |  |  |
| Requirements for Biological Science Available at the fo | the Option <br> Teaching Option (63-66 credits) <br> lowing campuses: University Park |  |


| Code | Title | Credits |
| :--- | :--- | :--- |
| Prescribed Courses |  |  |
| Prescribed Courses: <br> certification |  |  |
| 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 | 4 |
| SCIED 412 | Teaching Secondary Science II | 3 |

Additional Courses
Additional Courses: Require a grade of $C$ or better for teacher certification
BMB 251 Molecular and Cell Biology I 4-6
\& BMB 252 and Molecular and Cell Biology II
or BIOL 230W Biology: Molecules and Cells
MATH 141 or 4 credits of 200-level STAT GQ courses 4
Select one of the following: 3-4

| 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

| 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 6 credits of the following: |  |
| BMB 211 | Elementary Biochemistry |
| BMB 212 | Elementary Biochemistry Laboratory |
| BMB 401 | General Biochemistry |
| BMB 402 | General Biochemistry |
| CHEM 202 | Fundamentals of Organic Chemistry I |
| CHEM 203 | Fundamentals of Organic Chemistry II |
| CHEM 210 | Organic Chemistry I |
| CHEM 212 | Organic Chemistry II |
| CHEM 213 | Laboratory in Organic Chemistry |

## Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of $C$ or better for teacher certification
Select 8 credits of 300 -level or 400 -level BIOL or biological fields
Note 1: Students may complete multiple science teaching options concurrently by completing all of each option's requirements. The six science teaching options are: Biology, Chemistry, Earth and Space Science, Environmental Education, General Science, and Physics.

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

Chemistry Teaching Option (55-60 credits) Available at the following campuses: University Park

| Code | Title | Credits |
| :--- | :--- | ---: |
| Prescribed Courses |  |  |
| Prescribed Courses: <br> certification | Require a grade of C or better for teacher |  |
| 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
CHEM 202 Fundamentals of Organic Chemistry I
\& CHEM 203 and Fundamentals of Organic Chemistry II
CHEM 210 Organic Chemistry I
\& CHEM 212 and Organic Chemistry II
\& CHEM 213 and Laboratory in Organic Chemistry
Select 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, 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.

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

 Available at the following campuses: University ParkCode Title Credits

## Prescribed Courses

| 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 Physical Geology 3
or GEOSC 20 Planet Earth
GEOSC 21 Earth and Life: Origin and Evolution 3-4
or GEOSC 204 Geobiology
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:
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 Cred | Credits |
| :---: | :---: | :---: |
| 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 |
| LLED 411 | Teaching Language Arts In Secondary Schools I | 3 |
| LLED 412W | Teaching Language Arts in Secondary Schools II | 3 |
| LLED 420 | Teaching Adolescent Literature and Literacy | 3 |
| LLED 421 | Teaching Writing in Secondary Schools | 3 |
| LLED 422 | Teaching the Young Adult Literature Workshop | 3 |
| 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 |  |
| COMM 160 | Basic News Writing Skills |  |
| Select 3 credits of Speech and Oral Performance from the following: |  | 3 |
| CAS 100 | Effective Speech |  |
| CAS 280W | Storytelling and Speaking |  |
| THEA 102 | Fundamentals of Acting |  |
| Select 3 credits of Shakespeare from the following: |  | 3 |
| ENGL 129 | Shakespeare |  |
| ENGL 405 | Taking Shakespeare From Page to Stage |  |
| ENGL 440 | Studies in Shakespeare |  |
| ENGL 444 | Shakespeare |  |
| Select 6 credits of British and American Literature from the following: 6 |  |  |
| ENGL 221 | British Literature to 1798 |  |
| ENGL 222 | British Literature from 1798 |  |
| ENGL 231 | American Literature to 1865 |  |
| ENGL 232 | American Literature from 1865 |  |
| Select 3 credits of following: | Multicultural Literature in English from the | 3 |
| CMLIT/LTNST 403 | Latina/o Literature and Culture |  |
| $\begin{aligned} & \text { ENGL/AMST } \\ & 135 \end{aligned}$ | Alternative Voices in American Literature |  |

ENGL/AFAM African American Literature
139
ENGL/WMNST Women Writers
194
ENGL/AAS Asian American Literatures
428
ENGL 431/ Black American Writers
AMST 475
ENGL/WMNST Reading Black, Reading Feminist
462
ENGL/AFAM African American Novel I
466
ENGL/AFAM African American Novel II
467
ENGL/AFAM African American Poetry
468
ENGL/WMNST Women Writers and Their Worlds
490
ENGL 492/ American Women Writers
AMST 476/
WMNST 491
Select 3 credits of Nonprint Literature from the following: 3
AFAM/ENGL From Folk Shouts and Songs to Hip Hop Poetry
235
CMLIT 415 World Graphic Novels
COMM 150N The Art of the Cinema
COMM 250 Film History and Theory
COMM 411 Cultural Aspects of the Mass Media
ENGL 136 The Graphic Novel
THEA 100 The Art of the Theatre
THEA 105 Introduction to Theatre
Select 3 credits of Writing from the following:
3
ENGL 50 Introduction to Creative Writing
ENGL 212 Introduction to Fiction Writing
ENGL 213 Introduction to Poetry Writing
ENGL 214 Introduction to Creative Nonfiction Writing
ENGL 215 Introduction to General Nonfiction Writing
3 Environmental Education Teaching Option (55-58 credits) Available at the following campuses: University Park

## Code Title Credits

## Prescribed Courses

Prescribed Courses: Require a grade of C or better for teacher certification
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 411 Teaching Secondary Science I 3
SCIED 412 Teaching Secondary Science II 3
SCIED 457 3

## Additional Courses

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

| Select one of the following: |  |
| :--- | :--- |
| CHEM 20 | Environmental Chemistry |
| \& CHEM 21 | and Environmental Chemistry Laboratory |
| CHEM 110 | Chemical Principles I |
| \& CHEM 111 | and Experimental Chemistry I |

Select one of the following:

| BIOL 240W | Biology: Function and Development of Organisms |
| :--- | :--- |
| WFS 407 | Ornithology |
| WFS 408 | Mammalogy |

## Supporting Courses and Related Areas

Supporting Courses and Related Areas: Require a grade of $C$ or better for teacher certification
Select two courses ( $6-8$ credits) in environmental law, economics,
management and policy (e.g., ECON 428, ERM 411, ERM 412,
ERM 413 W, WFS 410 , WFS 447 W, WFS $463 W$ )
Select 4 credits of an environmentally related course in Science
Technology and Society (e.g., STS 100, STS 460)
Select at least 14 credits from the cohort Teaching option ${ }^{1}$
${ }^{1}$ 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
$\left.\begin{array}{llc}\text { Code } & \text { Title } & \text { Credits } \\ \begin{array}{l}\text { Prescribed Courses }\end{array} & \\ \begin{array}{l}\text { Prescribed Courses: } \\ \text { certification }\end{array} & \text { Require a grade of C or better for teacher }\end{array}\right]$

## 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
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
Select one of the following:
PHYS 211 General Physics: Mechanics
\& PHYS 212 and General Physics: Electricity and Magnetism

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PHYS 250 Introductory Physics I
& PHYS 251 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 |
| :--- | :--- | ---: |
| Prescribed Courses |  |  |
| Prescribed <br> certification |  |  |
| 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 | 3 |
|  | Environments |  |

## Additional Courses

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

| CMPSC 101 <br> or CMPSC 121 | Introduction to Programming <br> Introduction to Programming Techniques | 3 |
| :---: | :--- | :---: |
| MATH 231 MATH 232 | Calculus of Several Variables |  |
| \& and Integral Vector Calculus |  |  |
| or MATH 230 | Calculus and Vector Analysis |  |
| MATH 435 | Basic Abstract Algebra |  |
| or MATH 470 | Algebra for Teachers | 4 |
| MATH 436 | Linear Algebra | 3 |
| or MATH 441 | Matrix Algebra | 3 |

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

## 8 Physics Teaching Option (55-62 credits)

Available at the following campuses: University Park


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/ The Holocaust in Film and Literature
JST 128N
HIST/JST History of Fascism and Nazism
143N
HIST/JST 195 Genocide in Global perspectives: Twentieth
Century and beyond
Select 6 credits from the following:
HIST/JST 426 Holocaust
HIST/JST/ Women and the Holocaust
WMNST 439
JST/PLSC Genocide and Tyranny
450H
ASIA/HIST Hiroshima \& the Holocaust in History and Memory
457/JST 474
JST/PHIL/ Ethics After the Holocaust
RLST 478
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.) <br> - Quantification (GQ): 6 credits <br> - Writing and Speaking (GWS): 9 credits

## Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.) <br> - Arts (GA): 3 credits <br> - Health and Wellness (GHW): 3 credits <br> - Humanities (GH): 3 credits <br> - Social and Behavioral Sciences (GS): 3 credits <br> - 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.

