SCIENCE, B.S. (BEHREND)

Begin Campus: Any Penn State Campus

End Campus: Erie

Degree Requirements

For the Bachelor of Science degree in Science, a minimum of 120 credits is required, with at least 15 credits at the 400 level:

Requirement	Credits
General Education	45
Electives	0-1
Requirements for the Major	89-90

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses.

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level prescribed, additional, and supporting course.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
CMPSC 121	Introduction to Programming Techniques	3
MATH 141	Calculus with Analytic Geometry II	4
Prescribed Courses: Require a grade of C or better		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
MATH 140	Calculus With Analytic Geometry I	4
Additional Courses		
Select one of the following sequences:		8-10
Sequence A		
PHYS 211	General Physics: Mechanics (requires a grade of C or better)	
PHYS 212	General Physics: Electricity and Magnetism	
PHYS 213	General Physics: Fluids and Thermal Physics	
or PHYS 214	General Physics: Wave Motion and Quantum Physics	
Sequence B		
PHYS 250	Introductory Physics I (requires a grade of C or better)	
PHYS 251	Introductory Physics II	
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	
Supporting Courses and Related Areas		
Select 8 credits in a foreign language [1]		8
Requirements for the Option		
Select an option		43-46

[1] Proficiency demonstrated by examination or coursework to the level of the second semester; if fewer than 8 credits are needed to reach the required proficiency, students choose selections from program list to total 8 credits.

Requirements for the Option

A maximum of 8 credits of Research (494), Internship (495), or Independent Study (296, 496) may be applied toward credits for graduation in all options.

General Science Option (43-46 credits)

Code	Title	Credits
Additional Courses		
Select one of the following:		3-4
CMPSC 122	Intermediate Programming	
MATH 230	Calculus and Vector Analysis	
MATH 250	Ordinary Differential Equations	
STAT 200	Elementary Statistics	
Supporting Courses and Related Areas		
Select 3 credits from geosciences [1]		3
Select 18 credits (at least 9 credits at the 400 level) in one of the following areas: computer sciences, life sciences, mathematical sciences, or physical sciences [1]		18
Select 18-22 credits (at least 6 credits at the 400 level) from program list [2]		18-22

[1] Computer sciences include CENBD and CMPSC; geosciences include GEOG, GEOSC, MATSC, MATSE; life sciences include BIOL, BMB, MICRB; mathematical sciences include MATH and STAT; physical sciences include ASTRO, CHEM, PHYS.

[2] Students may apply 6 credits of basic ROTC.

Environmental Studies Option (43-46 credits)

Code	Title	Credits
Prescribed Courses		
GEOG 160	Mapping Our Changing World	3
GEOG 161	Applied Geographic Information Systems	1
Prescribed Courses: Require a grade of C or better		
BIOL 402W	Biological Experimental Design	3
Additional Courses		
CHEM 202	Fundamentals of Organic Chemistry I	3-4
or CHEM 227	Analytical Chemistry	
STAT 200	Elementary Statistics	3-4
or STAT 250	Introduction to Biostatistics	
Select one of the following:		3-4
BIOL 220W	Biology: Populations and Communities	

BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
MICRB 201	Introductory Microbiology	
Supporting Courses and Related Areas		
Select 6 credits from geosciences [1,2]		6
Select 9-16 credits from Environmental Studies option program list with at least 6 credits with ECON, ECNS, PLSC, or POLSC designations and at least 5-7 credits at the 400 level [3]		9-16
Select 2-4 credits of 400-level research, internship, field school, or studies abroad [4]		2-4
Supporting Courses and Related Areas: Require a grade of C or better		
Select 6 credits of 400-level courses in computer sciences, life sciences, mathematical sciences, or physical sciences [1]		6

1. Computer sciences include CENBD and CMPSC; geosciences include GEOG, GEOSC, MATSC, MATSE; life sciences include BIOL, BMB, MICRB; mathematical sciences include MATH and STAT; physical sciences include ASTRO, CHEM, PHYS.
2. In addition to courses used to satisfy the prescribed courses requirement.
3. Students may apply 6 credits of basic ROTC.
4. A student in this major must complete at least 15 credits of 400-level courses and 3 credits of W courses in prescribed, additional, or supporting courses from one of the areas: computer science, life sciences, mathematical sciences, or physical sciences.

Earth and Space Science Pre-Certification Option (43-46 credits)

This option is designed to prepare students in pre-certification for teaching earth and space science.

Code	Title	Credits
Prescribed Courses		
ASTRO 10	Elementary Astronomy	2
ASTRO 11	Elementary Astronomy Laboratory	1
GEOSC 2	Historical Geology	3
GEOSC 20	Planet Earth	3
GEOSC 40	The Sea Around Us	3
METEO 3	Weather Revealed: Introductory Meteorology	3
Additional Courses		
Select two of the following:		6
ASTRO 291	Astronomical Methods and the Solar System	
ASTRO 292	Astronomy of the Distant Universe	
GEOG 10	Physical Geography: An Introduction	
GEOSC 10	Geology of the National Parks	
Supporting Courses and Related Areas		
Select 6 credits from the geosciences [1,2]		6
Select at least 6 credits at the 400 level in one of the following areas: computer sciences, life sciences, mathematical sciences, or physical sciences [1]		6
Select 10-13 credits (at least 6-9 credits at the 400 level) from the program list [3,4]		10-13
Supporting Courses and Related Areas: Require a grade of C or better		
Select at least 6 credits at the 400 level in one of the following areas: computer sciences, life sciences, mathematical sciences, or physical sciences		

1. Computer sciences include CENBD and CMPSC; geosciences include GEOG, GEOSC, MATSC, MATSE; life sciences include BIOL, BMB, MICRB; mathematical sciences include MATH and STAT; physical sciences include ASTRO, CHEM, PHYS.
2. In addition to courses used to satisfy the prescribed courses requirement.
3. A student in this major must complete at least 15 credits of 400-level courses and 3 credits of W courses in prescribed, additional, or supporting courses from one of the areas: computer science, life sciences, mathematical sciences, or physical sciences.
4. Students may apply 6 credits of basic ROTC.

General Science Pre-Certification Option (43-46 credits)

This option is designed to prepare students in pre-certification for teaching general science.

Code	Title	Credits
Prescribed Courses		
ASTRO 10	Elementary Astronomy	2
ASTRO 11	Elementary Astronomy Laboratory	1
BIOL 230W	Biology: Molecules and Cells	4
GEOSC 2	Historical Geology	3
GEOSC 20	Planet Earth	3
GEOSC 40	The Sea Around Us	3
METEO 3	Weather Revealed: Introductory Meteorology	3
Additional Courses		
BIOL 220W	Biology: Populations and Communities	4
or BIOL 240W	Biology: Function and Development of Organisms	
Select one of the following:		3-4
CMPSC 122	Intermediate Programming	
MATH 230	Calculus and Vector Analysis	
MATH 250	Ordinary Differential Equations	
STAT 200	Elementary Statistics	
Supporting Courses and Related Areas		
Select 10-14 credits (at least 6-9 credits at the 400 level) from the program list [2,3]		10-14
Supporting Courses and Related Areas: Require a grade of C or better		
Select at least 6 credits at the 400 level in one of the following areas: computer sciences, life sciences, mathematical sciences, or physical sciences [1]		6

1. Computer sciences include CENBD and CMPSC; geosciences include GEOG, GEOSC, MATSC, MATSE; life sciences include BIOL, BMB, MICRB; mathematical sciences include MATH and STAT; physical sciences include ASTRO, CHEM, PHYS.
2. A student in this major must complete at least 15 credits of 400-level courses and 3 credits of W courses in prescribed, additional, or supporting courses from one of the areas: computer science, life sciences, mathematical sciences, or physical sciences.
3. Students may apply 6 credits of basic ROTC.

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.