SCIENCE, B.S. (UNIVERSITY COLLEGE)

Begin Campus: Any Penn State Campus
End Campus: Scranton, York

Degree Requirements
For the Bachelor of Science degree in Science, a minimum of 124 credits is required, with at least 15 credits at the 400 level:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>45</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>94</td>
</tr>
</tbody>
</table>

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.

Requirements for the Major
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)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 111</td>
<td>Experimental Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 112</td>
<td>Chemical Principles II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 113</td>
<td>Experimental Chemistry II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>Calculus with Analytic Geometry II</td>
<td>4</td>
</tr>
</tbody>
</table>

Prescribed Courses:
- **CHEM 110** Biology: Basic Concepts and Biodiversity
- **CHEM 110** Biology: Chemical Principles I
- **MATH 140** Calculus With Analytic Geometry I

Prescribed Courses: Require a grade of C or better
- **BIOL 110** Additional Course
- **CHEM 202** & **CHEM 203** Fundamentals of Organic Chemistry I & II

Requirements for the Option
Select an option

Requirements for the Option

<table>
<thead>
<tr>
<th>General Science Option (74 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available at the following campuses: Abington, Berks, Harrisburg, Scranton, University Park</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPA 101</td>
<td>Introduction to Health Services Organization</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Courses
Select 4 credits of the following:
- **BIOL 129** Mammalian Anatomy
- **BIOL 220W** Biology: Populations and Communities
- **BIOL 230W** Biology: Molecules and Cells
- **BIOL 240W** Biology: Function and Development of Organisms
- **BIOL 141** Introduction to Human Physiology & **BIOL 142** Physiology Laboratory

Select 3-4 credits of the following:
- **STAT 200** Elementary Statistics

Supporting Courses and Related Areas
A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

Select 21-26 credits from program list (Students may apply 6 credits of ROTC)

1. **PHYS 211** General Physics: Mechanics & **PHYS 212** and General Physics: Electricity and Magnetism & **PHYS 213** and General Physics: Fluids and Thermal Physics & **PHYS 214** and General Physics: Wave Motion and Quantum Physics

Select 3 credits from earth and mineral sciences
- **STAT 200** Elementary Statistics
- **STAT 250** Introduction to Biostatistics
- **STAT 401** Experimental Methods

Select 3-4 credits from the following:
- **CHEM 202** Fundamentals of Organic Chemistry I
- **CHEM 203** Fundamentals of Organic Chemistry II

Select 6 credits of 400-level courses

Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level

1. **PHYS 211** and **PHYS 250** require a grade of C or better.
2. Only the 9 credits at the 400 level require a grade of C or better.
3. Physical sciences include ASTRO, CHEM, PHYS; mathematical sciences include CMPSC, MATH, STAT; life sciences include BIOL, BIOTC, BMB, MICRB.

Biological Sciences and Health Professions Option (74 credits)
Available at the following campuses: University Park

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPA 101</td>
<td>Introduction to Health Services Organization</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Courses
Select 4 credits of the following:
- **BIOL 129** Mammalian Anatomy
- **BIOL 220W** Biology: Populations and Communities
- **BIOL 230W** Biology: Molecules and Cells
- **BIOL 240W** Biology: Function and Development of Organisms
- **BIOL 141** Introduction to Human Physiology & **BIOL 142** Physiology Laboratory

Select 3-4 credits of the following:
- **STAT 200** Elementary Statistics
- **STAT 250** Introduction to Biostatistics
- **STAT 301**
- **STAT 401** Experimental Methods

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

Select 3 credits of the following: 3
- BIOL 222 Genetics
- BIOL 322 Genetic Analysis
- MMB 211 Introduction to Biochemistry
- MMB 251 Molecular and Cell Biology I
- MICRB 201 Introduction to Microbiology

Select 8-12 credits of the following: 8-12
- PHYS 211 General Physics: Mechanics
  & PHYS 212 and General Physics: Electricity and Magnetism
  & PHYS 213 and General Physics: Fluids and Thermal Physics
  & PHYS 214 and General Physics: Wave Motion and Quantum Physics

Supporting Courses and Related Areas
A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

Select 15 credits from program list for Healthcare/ Medicine/Ethical Competencies 1
Select 10-17 credits from program list (Students may apply 6 credits 10-17 of ROTC)
Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser

Supporting Courses and Related Areas: Require a grade of C or better
Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level 3 4

1 PHY 211 and PHY 250 require a grade of C or better.
2 Six credits must be at the 400-level. Select from department approved course list in consultation with adviser.
3 Only the 9 credits at the 400 level require a grade of C or better.
4 Physical sciences include ASTRO, CHEM, PHYS; mathematical sciences include CMPSC, MATH, STAT; life sciences include BIOL, BMB, MICRB.

Life Science Option (74 credits)
Available at the following campuses: Abington, Berks, Harrisburg, Scranton, York

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>BIOL</td>
<td>Biology: Populations and Communities</td>
<td>4</td>
</tr>
<tr>
<td>BIOL</td>
<td>Biology: Molecules and Cells</td>
<td>3</td>
</tr>
<tr>
<td>BIOL</td>
<td>Biology: Function and Development of Organisms</td>
<td>3</td>
</tr>
<tr>
<td>CMPSC</td>
<td>Introduction to Programming</td>
<td>3</td>
</tr>
<tr>
<td>MATH</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>STAT</td>
<td>Introduction to Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>BMB</td>
<td>Elementary Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>BMB</td>
<td>Molecular and Cell Biology I</td>
<td>3</td>
</tr>
<tr>
<td>STAT</td>
<td>Experimental Methods</td>
<td>3</td>
</tr>
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<td>STAT</td>
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Legal Studies, Government Service, Public Policy Option (74 credits)
Available at the following campuses: University Park

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<tbody>
<tr>
<td>BIOL</td>
<td>Mammalian Anatomy</td>
<td>4</td>
</tr>
<tr>
<td>BIOL</td>
<td>Introduction to Human Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL</td>
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<tr>
<td>STAT</td>
<td>Experimental Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 8-12 credits of the following: 8-12

- 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
Available at the following campuses: Abington

Mathematical Science Option (74 credits)
Available at the following campuses: Abington

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</tr>
</thead>
<tbody>
<tr>
<td>PHYS 211 &amp; PHYS 212 &amp; PHYS 213 &amp; PHYS 214</td>
<td>General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics</td>
<td>1</td>
</tr>
</tbody>
</table>

Supporting Courses and Related Areas

Select 18-24 credits from program list (Students may apply 6 credits toward credits for graduation.

Select 3 credits in Global, Social, and Personal Awareness

Select 3 credits in Teamwork and Interpersonal Communication

Select 6 credits of 400-level courses

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

Select 9 credits of 400-level CMPSC, CSE, MATH, or STAT courses

1 PHYS 211 and PHYS 250 require a grade of C or better.

Physical Science Option (74 credits)
Available at the following campuses: Currently not available at any campus location

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</thead>
<tbody>
<tr>
<td>PHYS 211</td>
<td>General Physics: Mechanics</td>
<td>4</td>
</tr>
</tbody>
</table>

Select 6 credits of 400-level courses

Select 3 credits in Global, Social, and Personal Awareness

Select 3 credits in Teamwork and Interpersonal Communication

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

Select 9 credits of 400-level ASTRO, CHEM, or PHYS courses

Prescribed Courses: Require a grade of C or better

Select 20-22 credits from program list (Students may apply 6 credits toward credits for graduation.

Select 6-8 credits of the following:

Select 3 credits of the following:

Select 3 credits in Teamwork and Interpersonal Communication

Supporting Courses and Related Areas

A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

Select 20-22 credits from program list (Students may apply 6 credits toward credits for graduation.

Select 6 credits of 400-level courses

Select 3 credits in Global, Social, and Personal Awareness

Select 3 credits in Teamwork and Interpersonal Communication

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

Select 9 credits of 400-level ASTRO, CHEM, or PHYS courses

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing
intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (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.