SCIENCE, B.S. (UNIVERSITY COLLEGE)

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

Program Description
A large number of supporting credits permit students to readily include significant breadth or specialization into their undergraduate curriculum. Some examples include minors in business, computer and information science, education, kinesiology, or other fields. The degree allows students throughout the Commonwealth to become familiar with both the theory and the practice of science. It can help prepare students for various careers in pharmaceutical, biotechnology, chemical, medical, and agricultural industries. The degree can also be tailored to meet the specific requirements of professional programs such as medical, dental, or pharmacy schools.

General Science Option
Available at the following campuses: Abington, Berks, Harrisburg, Scranton, University Park, York

The General Science option of the B.S. Science degree allows for the most flexibility.

Achievement in a more specialized set of goals can be met by selecting one of the other B.S. options offered:

General Science Secondary Education Option
Available at the following campuses: Harrisburg

Biological Sciences and Health Professions Option
Available at the following campuses: University Park

Legal Studies, Government Service, Public Policy Option
Available at the following campuses: University Park

Life Sciences Option
Available at the following campuses: Abington, Berks, Harrisburg, Scranton, York

Mathematical Sciences Option
Available at the following campuses: Abington

Physical Sciences Option
Currently not available at any campus location

Two-Year Preprofessional Preparation
The first two years of the Science major (62 credits) can meet the pre professional needs of those interested in admission to some schools of pharmacy, physical therapy, optometry, nursing, and physician assistant training. Successful students can then transfer after two years of undergraduate study to the professional school to which they are admitted. Note, however, that no Penn State degree can be awarded after only two years (62 credits) of study in the Science major. Also, note that the abbreviated two-year curriculum alone does not prepare students for admission to professional schools of general medicine, veterinary medicine, or dental medicine. Consult with your college's health sciences professional adviser for additional information.

What is Science?
The Science major provides a broad and interdisciplinary foundation in the natural sciences. The Science BS program uses the principles of chemistry, physics, and life sciences to understand how these integrate over general areas including biological sciences and health professions, public policy, and science research and development.

You Might Like This Program If...
• You like learning by doing hands-on experiments.
• You are curious about the natural world and how science disciplines come together to explore and understand it.
• You are intrigued by science and desire a career in current and emerging interdisciplinary science disciplines, health professions, or melding science with law, policy or business.

Entrance to Major
In order to be eligible for entrance to the Science major, a student at any location must have:
1. attained at least a 2.00 cumulative grade-point average;
2. completed the following courses with a grade of C or better:
   • BIOL 110
   • CHEM 110
   • MATH 140
3. completed one of the following courses:
   a. BIOL 220W or BIOL 230W or BIOL 240W
   b. PHYS 250 with a grade of C or better

General Science Secondary Education option
Entrance to the General Science Secondary Education option requires the following additional requirements:
• a minimum grade point average of 3.0;
• completion of ENGL 15 or ENGL 30H;
• three credits of literature from a department-approved list with a C or higher grade;
• completion of 6 credits of college-level mathematics (GQ MATH or STAT prefixes) with a C or higher grade;
• satisfy any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for the major;
• submission to the Teacher Education Office of current and clear background checks as required by the Pennsylvania Department of Education;
• submission of documentation of 20 pre-major fieldwork hours.

Degree Requirements
For the Bachelor of Science degree in Science, a minimum of 125 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>Electives</td>
<td>0-10</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>85-110</td>
</tr>
</tbody>
</table>
15-30 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. For the General Science Secondary Education Option, a total of 30 credits are used to satisfy General Education requirements: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses; 6 credits of GS courses; and 6 credits of GH 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 department approved course list in consultation with adviser. A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Prescribed Courses</strong></td>
<td></td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Experimental Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 112</td>
<td>Chemical Principles II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 113</td>
<td>Experimental Chemistry II</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 110</td>
<td>Biology: Basic Concepts and Biodiversity</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>Chemical Principles I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 140</td>
<td>Calculus With Analytic Geometry I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 141</td>
<td>Calculus with Analytic Geometry II</td>
<td>4</td>
</tr>
</tbody>
</table>

**Requirements for the Option**

Select an option 65-90

**Requirements for the Option**

**General Science Option (70-78 credits)**

*Available at the following campuses: Abington, Berks, Harrisburg, Scranton, University Park, York*

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Prescribed Courses</strong></td>
<td></td>
</tr>
<tr>
<td>STAT 200</td>
<td>Elementary Statistics</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 220W</td>
<td>Biology: Populations and Communities</td>
<td></td>
</tr>
<tr>
<td>BIOL 230W</td>
<td>Biology: Molecules and Cells</td>
<td></td>
</tr>
<tr>
<td>BIOL 240W</td>
<td>Biology: Function and Development of Organisms</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Additional Courses</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 4 credits from the following:</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>BIOL 220W</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL 230W</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOL 240W</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Supporting Courses and Related Areas</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 21-25 credits from program list (Students may apply 6 credits of ROTC)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 credits from earth and mineral sciences</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser</td>
<td>3</td>
</tr>
</tbody>
</table>

**Additional Courses**

Select 4 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 220W</td>
<td>Biology: Populations and Communities</td>
<td></td>
</tr>
<tr>
<td>BIOL 230W</td>
<td>Biology: Molecules and Cells</td>
<td></td>
</tr>
<tr>
<td>BIOL 240W</td>
<td>Biology: Function and Development of Organisms</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Supporting Courses and Related Areas</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 credits of GH literature from department list</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select a 3 credit EARTH course</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select a 3 credit ASTRO course</td>
<td>3</td>
</tr>
</tbody>
</table>

**Supporting Courses and Related Areas**

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

Select 3 credits of GH literature from department list 3

Select a 3 credit EARTH course 3

Select a 3 credit ASTRO course 3

**General Science Secondary Education Option (90 credits)**

*Available at the following campuses: Harrisburg*

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Prescribed Courses</strong></td>
<td></td>
</tr>
<tr>
<td>STAT 200</td>
<td>Elementary Statistics</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Prescribed Courses: Require a grade of C or better</strong></td>
<td></td>
</tr>
<tr>
<td>BIOL 220W</td>
<td>Biology: Populations and Communities</td>
<td></td>
</tr>
<tr>
<td>BIOL 230W</td>
<td>Biology: Molecules and Cells</td>
<td></td>
</tr>
<tr>
<td>BIOL 240W</td>
<td>Biology: Function and Development of Organisms</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Supporting Courses and Related Areas</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 A grade of C or better per course is required for teacher certification.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 PHYS 211 and PHYS 250 require a grade of C or better.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 Only the 9 credits at the 400 level require a grade of C or better.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 Physical sciences include ASTRO, CHEM, PHYS; mathematical sciences include CMPSC, MATH, STAT; life sciences include BIOL, BIOTC, BMB, MICRB.</td>
<td></td>
</tr>
</tbody>
</table>

Select 18 credits in life, mathematical, or physical sciences, with at least 9 credits at the 400 level 3,4
Select 9 credits of 400-level earth or physical science courses
Select 12 credits of science or education elective courses

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

Available at the following campuses: University Park

Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses
Supporting Courses and Related Areas: Require a grade of C or better
department approved course list in consultation with adviser
Select 3 credits in Global, Social, and Personal Awareness from
of ROTC)
Select 10-17 credits from program list (Students may apply 6 credits
Competencies.
Select 15 credits from program list for Healthcare/ Medicine/Ethical
applied toward credits for graduation.
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. 2
Select 10-17 credits from program list (Students may apply 6 credits
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 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses

Legal Studies, Government Service, Public Policy Option (74 credits)
Available at the following campuses: University Park

Legal Studies, Government Service, Public Policy Option (74 credits)
Available at the following campuses: University Park

Select 4 credits from the following:
Select 18 credits in life, mathematical, or physical sciences, with at
Supporting Courses and Related Areas: Require a grade of C or better
department approved course list in consultation with adviser.
Six credits must be at the 400-level. Select from department approved
course list in consultation with adviser.
Six credits must be at the 400-level. Select from department approved
course list in consultation with adviser.
Six credits must be at the 400-level. Select from department approved
course list in consultation with adviser.

Physical sciences include ASTRO, CHEM, PHYS; mathematical
Sciences include CMPSC, MATH, STAT; life sciences include BIOL,
BIOTC, BMB, MICRB.

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

Select 8-12 credits from the following:
Select 18 credits in life, mathematical, or physical sciences, with at
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 PHYS 211 and PHYS 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,
BIOTC, BMB, MICRB.
Available at the following campuses: Abington

Science, B.S. (University College)

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

Select 3 credits from the following: 3
- CMPSC 101 Introduction to Programming
- MATH 250 Ordinary Differential Equations
- STAT 250 Introduction to Biostatistics

Select 3 credits from the following: 3
- BMB 211 Elementary Biochemistry
- BMB/MICRB 251 Molecular and Cell Biology I
- MICRB 201 Introductory Microbiology

Select 6-8 credits from 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 8-12 credits from 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
- PHYS 250 Introductory Physics I
- & PHYS 251 and Introductory Physics II

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

Select 18-24 credits from program list (Students may apply 6 credits 8-24 of ROTC)
- Select 6 credits of 400-level courses 6
- Select 3 credits in Global, Social, and Personal Awareness 3
- Select 3 credits in Teamwork and Interpersonal Communication 3
- Supporting Courses and Related Areas: Require a grade of C or better 3
- Select 9 credits of 400-level CMPSC, CSE, MATH, or STAT courses 9

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

Mathematical Science Option (65-77 credits)
Available at the following campuses: Abington

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPSC 122</td>
<td>Intermediate Programming</td>
<td>3</td>
</tr>
<tr>
<td>MATH 220</td>
<td>Matrices</td>
<td>2-3</td>
</tr>
</tbody>
</table>

Additional Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPSC 121</td>
<td>Introduction to Programming Techniques</td>
<td>3</td>
</tr>
<tr>
<td>or CMPSC 201</td>
<td>Programming for Engineers with C++</td>
<td></td>
</tr>
<tr>
<td>MATH 230</td>
<td>Calculus and Vector Analysis</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 251</td>
<td>Ordinary and Partial Differential Equations</td>
<td></td>
</tr>
</tbody>
</table>

Select 3 credits from the following: 3
- BMB 211 Elementary Biochemistry
- BMB/MICRB 251 Molecular and Cell Biology I

MICRB 201 Introductory Microbiology
Select 3 credits from the following: 3
- CMPSC 360 Discrete Mathematics for Computer Science
- MATH 311W Concepts of Discrete Mathematics
- STAT/MATH 318 Elementary Probability

Select 8-12 credits from 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
- PHYS 250 Introductory Physics I
- & PHYS 251 and Introductory Physics II

Supporting Courses and Related Areas
Currently not available at any campus location

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTRO 291</td>
<td>Astronomical Methods and the Solar System</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 212</td>
<td>General Physics: Electricity and Magnetism</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 213</td>
<td>General Physics: Fluids and Thermal Physics</td>
<td>2</td>
</tr>
<tr>
<td>PHYS 214</td>
<td>General Physics: Wave Motion and Quantum Physics</td>
<td>2</td>
</tr>
</tbody>
</table>

Prescribed Courses: Require a grade of C or better
- PHYS 211 General Physics: Mechanics 4

Additional Courses
Select 3 credits from the following: 3
- BMB 211 Elementary Biochemistry
- BMB/MICRB 251 Molecular and Cell Biology I
- MICRB 201 Introductory Microbiology

Select 6-8 credits from 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
- MATH 230 Calculus and Vector Analysis
- or MATH 251 Ordinary and Partial Differential Equations

Select 3 credits from the following: 3
- ASTRO 292 Astronomy of the Distant Universe

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

Program Learning Objectives

• Process of Science: Apply the elements of the process of science such as posing questions, generating novel hypotheses based on the scientific literature; developing appropriate technical skills for research; designing/conducting experiments to test hypotheses in laboratory and/or field settings; summarizing/interpreting data; integrating/evaluating findings in the broader scientific field to construct new knowledge; and/or participating in the peer review/revision process.
• Quantitative Reasoning and Data Science: Apply basic quantitative competencies such as algebra, probability, statistics, unit conversions, and fundamental principles; organize, summarize, and interpret quantitative data; use modeling/simulation to approach problems from across various scales; and/or find and analyze large databases using statistical methods and/or other approaches.
• Interdisciplinary Thinking: Integrate knowledge among science subfields and between science and other disciplines.
• Collaboration and Communications: Engage with diverse communities and leverage the skills in the community to pose and solve scientific questions; demonstrate the ability to work in teams.
to solve problems; and/or communicate in a variety of formal and informal ways in the discussion of scientific research.

- **Science and Society**: Explore the impacts of scientific research on society and the environment and how society influences/relying on research to inform decision-making; evaluate the ethical implications of scientific research; recognize ethical issues in a variety of settings; and/or describe how different perspectives and the resulting alternative approaches might be evaluated using ethical principles to identify a solution to an issue.

- **Professional Experiences**: Communicate in a professional manner and learn/use professional behaviors in all aspects of college and career building activities, including participation in opportunities such as research, internships, cooperative education, teaching and tutoring, study abroad, and/or volunteer work.

### 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/)

### Scranton

Agnes Kim  
Associate Professor  
120 Ridge View Drive  
Dunmore, PA 18512  
570-963-2549  
axk55@psu.edu

### York

Anne Vardo-Zalik  
Associate Professor of Biology  
1 Elias Science Building  
York, PA 17403  
717-718-6705  
amv12@psu.edu

### Abington

Les Murray  
Program Chair  
1600 Woodland Road  
Abington, PA 19001  
215-881-7940  
lmd12@psu.edu

### Berks

Ike Shibley  
Program Coordinator, Associate Professor  
L101G

### Reading, PA 19610

610-396-6185  
BKScience@psu.edu

### Harrisburg

Sairam V. Rudrabhatla, Ph.D.  
Program Chair  
Science and Technology Building, TL 174  
Middletown, PA 17057  
717-948-6560  
svr11@psu.edu

### University Park

Science, B.S. Program  
Beth Johnson  
Director, Science Major  
225B Ritenour Building  
University Park, PA 16802  
814-863-3889  
bai107@psu.edu

Accelerated Science B.S./M.B.A. Program  
Beth Johnson  
Director, Science Major  
225B Ritenour Building  
University Park, PA 16802  
814-863-3889  
bai107@psu.edu

### 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).

### Scranton Campus

**General Science Option: Science, B.S. at Scranton Campus**

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

### First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 15 (GWS)</td>
<td>3</td>
<td>BIOL 230W or 240W</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 110 (GN)**†</td>
<td>4</td>
<td>CHEM 112 &amp; &amp;CHEM 113 (GN)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 110 &amp; CHEM 111 (GN)**†</td>
<td>4</td>
<td>MATH 141 (GQ)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 140 (GQ)**†</td>
<td>4</td>
<td>General Education Course</td>
<td>3</td>
</tr>
<tr>
<td>PSU 8</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Reading, PA 19610  
610-396-6185  
BKScience@psu.edu
<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 220W</td>
<td></td>
<td>4</td>
<td>Global Social and Personal</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 250</td>
<td></td>
<td>4</td>
<td>Earth and Mineral Sciences</td>
<td>3</td>
</tr>
<tr>
<td>STAT 200 or 250</td>
<td></td>
<td>3-4</td>
<td>BIOL 230W or 240W</td>
<td>4</td>
</tr>
<tr>
<td>CAS 100 (GWS)</td>
<td></td>
<td>3</td>
<td>PHYS 251 (GN)</td>
<td>4</td>
</tr>
<tr>
<td>General Education Course</td>
<td></td>
<td>3</td>
<td>General Education Course</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits 17-18</strong></td>
<td></td>
<td><strong>Total Credits 17</strong></td>
<td></td>
</tr>
<tr>
<td>Third Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400 Level Option - Life/</td>
<td>3-4</td>
<td>400 Level Selection - Life/</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mathematical/Physical</td>
<td>Mathematical/Physical</td>
<td>Science</td>
<td>Science</td>
<td></td>
</tr>
<tr>
<td>Option Selection - Teamwork, Interpersonal</td>
<td>3</td>
<td>Option Selection - Life/</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td>Mathematical/Physical</td>
<td></td>
</tr>
<tr>
<td>General Education Course</td>
<td>3</td>
<td>General Education Course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>General Education Course</td>
<td>3</td>
<td>Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>General Education Course</td>
<td>1.5</td>
</tr>
<tr>
<td>(GHW)</td>
<td></td>
<td></td>
<td>(GHW)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits 15-16</strong></td>
<td></td>
<td><strong>Total Credits 16.5</strong></td>
<td></td>
</tr>
<tr>
<td>Fourth Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400 Level Selection - Life/</td>
<td>3</td>
<td>400 Level Selection</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mathematical/Physical</td>
<td>Mathematical/Physical</td>
<td>Science</td>
<td>Science</td>
<td></td>
</tr>
<tr>
<td>Option Selection - Life/</td>
<td>3</td>
<td>Option Selection - Life/</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mathematical/Physical</td>
<td>Mathematical/Physical</td>
<td>Science</td>
<td>Science</td>
<td></td>
</tr>
<tr>
<td>Option Selection - Life/</td>
<td>3</td>
<td>Option Selection</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mathematical/Physical</td>
<td>Mathematical/Physical</td>
<td>Science</td>
<td>Science</td>
<td></td>
</tr>
<tr>
<td>Elective - Option Course</td>
<td>3</td>
<td>Option Selection</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Elective - Option Course</td>
<td>3</td>
<td>Option Selection</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>General Education Course (GHW)</td>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits 16.5</strong></td>
<td></td>
<td><strong>Total Credits 15</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits 128-130</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 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:

BIOL 230W is offered alternating spring semesters
BIOL 240W is offered alternating spring semesters

Students may take PHYS 211, General Physics: Electricity and Magnetism (PHYS 212), General Physics: Fluids and Thermal Physics (PHYS 213), & General Physics: Wave Motion and Quantum Physics (PHYS 214) in place of PHYS 250 & PHYS 251
**Life Science Option: Science, B.S. at Scranton Campus**

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

### First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 15 (GWS)†</td>
<td>3</td>
<td>BIOL 230W or 240W</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 110 (GN)†</td>
<td>4</td>
<td>CHEM 112</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 110 &amp; CHEM 111 (GN)†</td>
<td>4</td>
<td>MATH 141 (GQ)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 140 (GQ)†</td>
<td>4</td>
<td>General Education Course</td>
<td>3</td>
</tr>
<tr>
<td>PSU 8</td>
<td>1</td>
<td>General Education Course (GHW)</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>16.5</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Second Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 220W</td>
<td>4</td>
<td>CHEM 212</td>
<td>5</td>
</tr>
<tr>
<td>PHYS 250†</td>
<td>4</td>
<td>BIOL 230W or 240W</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 210†</td>
<td>3</td>
<td>PHYS 251 (GN)†</td>
<td>4</td>
</tr>
<tr>
<td>Quantification (GQ)†</td>
<td>3</td>
<td>General Education Course</td>
<td>3</td>
</tr>
<tr>
<td>General Education Course</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
<td><strong>16</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Third Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 Level Option - Life/ Mathematical/Physical Science*</td>
<td>3-4</td>
<td>BMB 211 (or General Education Course)</td>
<td>3</td>
</tr>
<tr>
<td>Option Selection - Teamwork, Interpersonal Communication</td>
<td>3</td>
<td>Option Selection: Global, Social, and Personal Awareness</td>
<td>3</td>
</tr>
<tr>
<td>CAS 100</td>
<td>3</td>
<td>400 Level Selection Life Sciences*</td>
<td>3</td>
</tr>
<tr>
<td>General Education Course</td>
<td>3</td>
<td>ENGL 202C</td>
<td>3</td>
</tr>
<tr>
<td>General Education Course (GHW)</td>
<td>1.5</td>
<td>Option Selection</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13.5-14.5</strong></td>
<td><strong>15</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Fourth Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 Level Selection - Life Science*</td>
<td>3</td>
<td>400 Level Selection</td>
<td>3</td>
</tr>
<tr>
<td>400 Level Selection</td>
<td>3</td>
<td>BMB 211 (or General Education Course)</td>
<td>3</td>
</tr>
<tr>
<td>Option Selection</td>
<td>3</td>
<td>Option Selection</td>
<td>3</td>
</tr>
<tr>
<td>Option Selection</td>
<td>3</td>
<td>Option Selection</td>
<td>3</td>
</tr>
<tr>
<td>General Education Course</td>
<td>3</td>
<td>Option Selection</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>15</strong></td>
<td></td>
</tr>
</tbody>
</table>

* 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**

BIOL 230W is offered alternating spring semesters

BIOL 240W is offered alternating spring semesters

Students may take PHYS 211, General Physics: Electricity and Magnetism (PHYS 212), General Physics: Fluids and Thermal Physics (PHYS 213), & General Physics: Wave Motion and Quantum Physics (PHYS 214) in place of PHYS 250 & PHYS 251. See adviser.

BMB 211 is offered alternating spring semesters.
York Campus

Science, B.S. at York Campus

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

First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 15 or 30H‡</td>
<td>3</td>
<td>CHEM 112</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 110*</td>
<td>4</td>
<td>CHEM 110†</td>
<td>3</td>
</tr>
<tr>
<td>MATH 140†</td>
<td>4</td>
<td>CHEM 211 or 250*</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 111†</td>
<td>1</td>
<td>General Education course (GHW)</td>
<td>1-3</td>
</tr>
</tbody>
</table>

15 13-15

Second Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS 100‡</td>
<td>3</td>
<td>ENGL 202C‡</td>
<td>3</td>
</tr>
<tr>
<td>Option Selection course</td>
<td>3-4</td>
<td>Option Selection course</td>
<td>3-4</td>
</tr>
<tr>
<td>General Education course</td>
<td>3</td>
<td>PHYS 214 or 213*</td>
<td>2</td>
</tr>
<tr>
<td>PHYS 212 or 251*</td>
<td>4</td>
<td>General Education course</td>
<td>6</td>
</tr>
<tr>
<td>MICRB 201</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16-17 14-15

Third Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option Selection course</td>
<td>3-4</td>
<td>400 Level Selection *</td>
<td>3</td>
</tr>
<tr>
<td>400 Level Selection*</td>
<td>3</td>
<td>General Education course</td>
<td>3</td>
</tr>
<tr>
<td>General Education course (GHW)</td>
<td>1-3</td>
<td>Option Selection course *</td>
<td>6-8</td>
</tr>
<tr>
<td>General Education course</td>
<td>3</td>
<td>Elective *</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16-19 15-17

Fourth Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 level Selection *</td>
<td>6</td>
<td>400 level selection</td>
<td>3</td>
</tr>
<tr>
<td>Option Selection course</td>
<td>3-4</td>
<td>Option Selection course</td>
<td>6-8</td>
</tr>
<tr>
<td>General Education Course</td>
<td>3</td>
<td>General Education Course</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15-16 15-17

Total Credits 119-131

* 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, ON, 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.

Career Paths

Penn State students with a BS in Science are prepared for a broad range of careers and graduate programs. The solid foundation of science and math prepares students to think critically and scientifically in a range of industries and professions.

Careers

This program often leads to careers in all healthcare professions, including physicians and physician assistants, dentists, optometrists, and podiatrists; laboratory research associates; scientific product representatives and science-based consulting.

Opportunities for Graduate Studies

Many graduates of the Science B.S. program choose to pursue graduate studies (MS and PhD) in the natural sciences. Most often, students gravitate to medically-related fields and life science sub-disciplines for focused graduate training. Students in the legal studies and public policy options may choose law school or master’s in public policy programs.

Professional Resources

• Association of American Medical Colleges (https://www.aacmc.org)
• American Association of Colleges of Osteopathic Medicine (https://www.aacom.org)
• American Dental Education Association (https://www.adea.org)
• Association of Schools and Colleges of Optometry (https://optometriceducation.org)
• American Association of Colleges of Podiatric Medicine (https://aacpm.org)
• American Academy of Physician Assistants (AAPA) (https://www.aapa.org) Physician Assistant Education Association (https://paeaonline.org)

Contact

Scranton

120 Ridge View Drive
Dunmore, PA 18512
570-963-2549
axk55@psu.edu
https://scranton.psu.edu/academics/degrees/bachelors/science

York

1 Elias Science Building
York, PA 17403
717-718-6705
amv12@psu.edu
https://www.york.psu.edu/academics/baccalaureate/science

Abington
DEPARTMENT OF BIOLOGY
1600 Woodland Road
Abington, PA 19001
215-881-7940
ldm12@psu.edu

https://www.abington.psu.edu/academics/majors-at-abington/science

Berks
DIVISION OF SCIENCE
Luerssen Science Building
Reading, PA 19610
610-396-6185
BKScience@psu.edu

https://berks.psu.edu/academics/bs-science

Harrisburg
SCHOOL OF SCIENCE, ENGINEERING, AND TECHNOLOGY
Science & Tech Building, TL 177
Middletown, PA 17057
717-948-4387
mrr53@psu.edu

https://harrisburg.psu.edu/science-engineering-technology/science-bs

University Park
Science, B.S. Program
SCIENCE MAJOR PROGRAM OFFICE
225B Ritenour Building
University Park, PA 16802
814-863-3889
bai107@psu.edu

https://science.psu.edu/interdisciplinary-programs/science-major

University Park
Accelerated Science B.S./M.B.A. Program
SCIENCE MAJOR PROGRAM OFFICE
225B Ritenour Building
University Park, PA 16802
814-863-3889
bai107@psu.edu

https://science.psu.edu/interdisciplinary-programs/science-major