SCIENCE, B.S. (UNIVERSITY COLLEGE)

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

Program Description
Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

The Science major is an interdisciplinary degree that aims to provide a broad, general education in science. The bachelor of science (B.S.) curriculum is designed specifically for students who have education goals relating to scientific theory and practice and who require a high degree of flexibility to obtain their educational objectives. After completing foundation courses in calculus, chemistry, physics, and the life sciences, students will select additional science courses from designated areas. 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, biotechnical, 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.

The Science major is an interdisciplinary degree that aims to provide a broad, general education in science. The bachelor of science (B.S.) curriculum is designed specifically for students who have education goals relating to scientific theory and practice and who require a high degree of flexibility to obtain their educational objectives. After completing foundation courses in calculus, chemistry, physics, and the life sciences, students will select additional science courses from designated areas. 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, biotechnical, 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: Altoona, 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:

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: Altoona, Berks, Harrisburg, Scranton, University Park, York

Mathematical Sciences Option
Available at the following campuses: Altoona

Physical Sciences Option
Available at the following campuses: Altoona

Not all of these options are available at all locations, and there are minor distinctions of the core curriculum at some locations, so see the Science program director at your College for further details.

Two-Year Preprofessional Preparation
The first two years of the Science major (62 credits) can meet the preprofessional 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 MATH 140 with a grade of C or better;
3. completed at least two of the following courses: BIOL 110; CHEM 110; PHYS 211 or PHYS 250, with a grade of C or better.

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:
6 credits are required and may satisfy other requirements

Cultures Requirement
6 credits are required and may satisfy other requirements

<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.

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 (http://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.)
- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Knowledge Domains
- Arts (GA): 6 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 6 credits
- Social and Behavioral Sciences (GS): 6 credits
- Natural Sciences (GN): 9 credits

Integrative Studies (may also complete a Knowledge Domain requirement)
- Inter-Domain or Approved Linked Courses: 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 (http://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.

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 (http://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: Require a grade of C or better

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>
</tbody>
</table>

Requirements for the Option
Select an option

74

Requirements for the Option
General Science Option (74 credits)
Available at the following campuses: Altoona, Berks, Harrisburg, Scranton, University Park, York

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 129</td>
<td>Mammalian Anatomy</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 141</td>
<td>Introduction to Human Physiology</td>
<td></td>
</tr>
<tr>
<td>&amp; BIOL 142</td>
<td>Physiology Laboratory</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>
</tbody>
</table>
Select 3-4 credits of the following:  
STAT 200  Elementary Statistics  
STAT 250  Introduction to Biostatistics  
STAT 301  Statistical Analysis I  
STAT 401  Experimental Methods

Select 8-12 credits of the following:  
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 21-26 credits from program list (Students may apply 6 credits 21-26 of ROTC)

Select 3 credits from earth and mineral sciences

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

Select 6 credits of 400-level courses

Supporting and Related Courses: 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

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>
<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  and Physiology Laboratory

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

Select 6-8 credits of the following:  
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 3 credits of the following:  
BIOL 222  Genetics  
BIOL 322  Genetic Analysis  
BMB 211  Elementary Biochemistry  
BMB 251  Molecular and Cell Biology I  
MICRB 201  Introductory Microbiology

Select 8-12 credits of the following:  
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 15 credits from program list for Healthcare/ Medicine/Ethical Competencies

Select 10-17 credits from program list (Students may apply 6 credits 0-17 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

Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses

1 Six credits must be at the 400-level. Select from department approved course list in consultation with adviser.
2 PHYS 211 and PHYS 250 require a grade of C or better.

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

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<td>BIOL 129</td>
<td>Mammalian Anatomy</td>
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<td>BIOL 141</td>
<td>Introduction to Human Physiology</td>
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<td>&amp; BIOL 142</td>
<td>and Physiology Laboratory</td>
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<td>BIOL 240W</td>
<td>Biology: Function and Development of Organisms</td>
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Select 3-4 credits of the following:  
STAT 200  Elementary Statistics  
STAT 250  Introduction to Biostatistics  
STAT 301  Statistical Analysis I  
STAT 401  Experimental Methods

Select 8-12 credits of the following:  
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 3 credits of the following:  
BIOL 222  Genetics  
BIOL 322  Genetic Analysis  
BMB 211  Elementary Biochemistry  
BMB 251  Molecular and Cell Biology I  
MICRB 201  Introductory Microbiology

Select 8-12 credits of the following:  
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 15 credits from program list for Healthcare/ Medicine/Ethical Competencies

Select 10-17 credits from program list (Students may apply 6 credits 0-17 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

Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses

1 Six credits must be at the 400-level. Select from department approved course list in consultation with adviser.
2 PHYS 211 and PHYS 250 require a grade of C or better.
Life Science Option (74 credits)
Available at the following campuses: Altoona, Berks, Harrisburg, Scranton, University Park, York

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIO 220W</td>
<td>Biology: Populations and Communities</td>
<td>4</td>
</tr>
<tr>
<td>BIO 230W</td>
<td>Biology: Molecules and Cells</td>
<td></td>
</tr>
<tr>
<td>BIO 240W</td>
<td>Biology: Function and Development of Organisms</td>
<td></td>
</tr>
<tr>
<td>CMPSC 101</td>
<td>Introduction to Programming</td>
<td>3</td>
</tr>
<tr>
<td>MATH 250</td>
<td>Ordinary Differential Equations</td>
<td></td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introduction to Biostatistics</td>
<td></td>
</tr>
<tr>
<td>BMB 211</td>
<td>Elementary Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>BMB 251</td>
<td>Molecular and Cell Biology I</td>
<td></td>
</tr>
<tr>
<td>MICRB 201</td>
<td>Introductory Microbiology</td>
<td></td>
</tr>
<tr>
<td>CHEM 202</td>
<td>Fundamentals of Organic Chemistry I</td>
<td>6-8</td>
</tr>
<tr>
<td>&amp; CHEM 203 &amp; Fundamentals of Organic Chemistry II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 210</td>
<td>Organic Chemistry I</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 212 &amp; Organic Chemistry II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 213 &amp; Laboratory in Organic Chemistry</td>
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</tr>
</tbody>
</table>

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

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 of ROTC)

Select 3 credits in Global, Social, and Personal Awareness

Select 23-29 credits from program list (Students may apply 6 credits of ROTC)

Select 12-17 credits from program list (Students may apply 6 credits of ROTC)

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

Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses

Select 6 credits of 400-level courses

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

Select 8-12 credits of the following:

Select 6-8 credits of the following:

Select 3 credits of the following:

Select 3 credits of the following:

Additional Courses

Select 3 credits of the following:

Select 3 credits of the following:

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

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

Select 18-24 credits from program list (Students may apply 6 credits of ROTC)

Select 3 credits in Global, Social, and Personal Awareness

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 BMB, BIOL, BIOTC, or MICRB courses

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

<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>
<tr>
<td>CMPSC 360</td>
<td>Discrete Mathematics for Computer Science</td>
<td>3-4</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>
<tr>
<td>STAT 301</td>
<td>Statistical Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 318</td>
<td>Elementary Probability</td>
<td></td>
</tr>
<tr>
<td>BMB 211</td>
<td>Elementary Biochemistry</td>
<td></td>
</tr>
<tr>
<td>BMB 251</td>
<td>Molecular and Cell Biology I</td>
<td></td>
</tr>
<tr>
<td>MICRB 201</td>
<td>Introductory Microbiology</td>
<td></td>
</tr>
<tr>
<td>CMPSC 121</td>
<td>Introduction to Programming Techniques</td>
<td>3</td>
</tr>
<tr>
<td>CMPSC 201</td>
<td>Programming for Engineers with C++</td>
<td></td>
</tr>
<tr>
<td>CMPSC 202</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 211</td>
<td>General Physics: Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>&amp; PHYS 212 &amp; General Physics: Electricity and Magnetism</td>
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<td></td>
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<tr>
<td>&amp; PHYS 213 &amp; General Physics: Fluids and Thermal Physics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 214 &amp; General Physics: Wave Motion and Quantum Physics 1</td>
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<td></td>
</tr>
<tr>
<td>PHYS 250</td>
<td>Introductory Physics I</td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 251 &amp; Introductory Physics II 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 of ROTC)

Select 6 credits of 400-level courses
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
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.

Physical Science Option (74 credits)
Available at the following campuses: Altoona

<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 of the following: 3

- BMB 211 Elementary Biochemistry
- BMB 251 Molecular and Cell Biology I
- MICRB 201 Introductory Microbiology

Select 6-8 credits 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

MATH 230 Calculus and Vector Analysis 4
or MATH 251 Ordinary and Partial Differential Equations

Select 3 credits of the following: 3

- ASTRO 292 Astronomy of the Distant Universe
- EMCH 211 Statics
- ME 300 Engineering Thermodynamics I
- PHYS 237 Introduction to Modern Physics

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 of ROTC) 20-22
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
Select 9 credits of 400-level ASTRO, CHEM, or PHYS courses 9

Program Learning Objectives
After completing this degree, students should be able to:

1. Use the scientific method to formulate and test hypotheses
2. Effectively communicate scientific findings to an interdisciplinary audience in written and oral formats.
3. Understand the interdisciplinary nature of science.
4. Use quantitative reasoning.
5. Understand the relationship between science and society.

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 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/)

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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 2020-21 academic year. To access previous years’ suggested academic plans, please visit the archive (http://bulletins.psu.edu/undergraduate/archive/) to view the appropriate Undergraduate Bulletin edition (Note: the archive only contain suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin).  

Scranton Campus  
General Science Option  
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**  
--- | --- | --- | ---  
ENGL 15 (GWS) | 3 | BIOL 230W or 240W | 4  
BIOL 110 (GN) | 4 | CHEM 112 & CHEM 113 (GN) | 4  
CHEM 110 & CHEM 111 (GN) | 4 | MATH 141 (GQ) | 4  
MATH 140 (GQ) | 4 | General Education Course | 3  
PSU 8 | 1 | |  
--- | --- | --- | ---  
16 | | 15 |  

Second Year  
**Fall** | **Credits** | **Spring** | **Credits**  
--- | --- | --- | ---  
BIOL 220W | 4 | General Social and Personal Awareness Course | 3  
PHYS 250 | 3 | Earth and Mineral Sciences | 3  
STAT 200 or 250 | 3-4 | BIOL 230W or 240W | 4  
CAS 100 (GWS) | 3 | PHYS 251 (GN) | 4  
General Education Course | 3 | General Education Course | 3  
--- | --- | --- | ---  
17-18 | | 17 |  

Third Year  
**Fall** | **Credits** | **Spring** | **Credits**  
--- | --- | --- | ---  
400 Level Option - Life/ Mathematical/Physical Science | 3-4 | 400 Level Selection - Life/ Mathematical/Physical Science | 3  
Option Selection - Teamwork, Interpersonal Communication | 3 | Option Selection - Life/ Mathematical/Physical Science | 3  
Option Selection | 3 | ENGL 202C | 3  
General Education Course | 3 | General Education Course | 3  
General Education Course | 3 | Elective | 3  
--- | --- | --- | ---  
--- | --- | 1.5 |  

Fourth Year  
**Fall** | **Credits** | **Spring** | **Credits**  
--- | --- | --- | ---  
400 Level Selection - Life/ Mathematical/Physical Science | 3 | 400 Level Selection | 3  
400 Level Selection | 3 | Option Selection - Life/ Mathematical/Physical Science | 3  
Option Selection - Life/ Mathematical/Physical Science | 3 | Option Selection | 3  
Elective - Option Course | 3 | Option Selection | 3  
Elective - Option Course | 3 | Option Selection | 3  
General Education Course | 1.5 | General Education Course (GHW) | 1.5  
--- | --- | --- | ---  
15-16 | | 16.5 | 15  

Total Credits 128-130  
* 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 University 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.  
GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes
Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of ‘C’ or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

### 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

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.

<table>
<thead>
<tr>
<th>First Year</th>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>ENGL 15 (GWS)†</td>
<td>3</td>
<td>BIOL 230W or 240W</td>
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<tr>
<td>BIOL 110 (GN)&quot;¥*</td>
<td>4</td>
<td>CHEM 112 &amp; CHEM 113 (GN)</td>
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<tr>
<td>CHEM 110 &amp; CHEM 111 (GN)&quot;¥*</td>
<td>4</td>
<td>MATH 141 (GQ)</td>
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<tr>
<td>MATH 140 (GQ)&quot;¥*</td>
<td>4</td>
<td>General Education Course</td>
<td>3</td>
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<td>PSU 8</td>
<td>1</td>
<td>General Education Course (GHW)</td>
<td>1.5</td>
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<td><strong>Total</strong></td>
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<table>
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<tr>
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<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 220W</td>
<td>4</td>
<td>CHEM 212 &amp; CHEM 213</td>
<td>5</td>
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<tr>
<td>PHYS 250*</td>
<td>4</td>
<td>BIOL 230W or 240W</td>
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<td>CHEM 210†</td>
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<td>PHYS 251 (GN)†</td>
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<td>Quantification (GQ)</td>
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<td>General Education Course</td>
<td>3</td>
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<tr>
<td>General Education Course</td>
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<th>Credits</th>
<th>Spring</th>
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<tr>
<td>400 Level Option - Life/ Mathematical/Physical Science*</td>
<td>3-4</td>
<td>BMB 211 (or General Education Course)</td>
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<tr>
<td>Option Selection - Teamwork, Interpersonal Communication</td>
<td>3</td>
<td>Option Selection: Global, Social, and Personal Awareness</td>
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<tr>
<td>CAS 100</td>
<td>3</td>
<td>400 Level Selection Life Sciences*</td>
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<tr>
<td>General Education Course</td>
<td>3</td>
<td>ENGL 202C</td>
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**General Education Course (GHW) 1.5 Option Selection 3**

**Fourth Year**

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<th>Fall</th>
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<th>Spring</th>
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<tr>
<td>400 Level Selection - Life Science*</td>
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<tr>
<td>General Education Course</td>
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<td>Option Selection</td>
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<tr>
<td><strong>Total</strong></td>
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**Total Credits 124-125**

* Course requires a grade of C or better for the major
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‡ Course is an Entrance to Major requirement
† Course satisfies General Education and degree requirement

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### Program Notes

BIOL 230W is offered alternating spring semesters

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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

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### First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENGL 15 or 30</td>
<td>3</td>
<td>CHEM 112</td>
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<td>BIOL 110</td>
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<td>CHEM 110</td>
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<td>MATH 141</td>
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<td>MATH 140</td>
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<td>PHYS 211 or 250</td>
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<td>CHEM 111</td>
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<td>General Education (GHW)</td>
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15

### Second Year

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<th>Spring</th>
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<tr>
<td>CAS 100</td>
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<td>ENGL 202C</td>
<td>3</td>
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<tr>
<td>Option Selection course</td>
<td>3-4</td>
<td>Option Selection course</td>
<td>3-4</td>
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<tr>
<td>General Education course</td>
<td>3</td>
<td>PHYS 214 or 213</td>
<td>2</td>
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<td>PHYS 212 or 251</td>
<td>4</td>
<td>General Education course</td>
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<tr>
<td>MICRB 201</td>
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16-17

### Third Year

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<td>Option Selection course</td>
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<td>400 Level Selection</td>
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<td>400 Level Selection</td>
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<td>General Education course</td>
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<td>General Education course (GHW)</td>
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<td>Option Selection course</td>
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<td>Elective</td>
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16-19

### Fourth Year

<table>
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<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
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<tr>
<td>400 level Selection</td>
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<td>Option Selection course</td>
<td>3-4</td>
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<td>6-8</td>
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<tr>
<td>General Education Course</td>
<td>3</td>
<td>General Education Course</td>
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<tr>
<td>Elective</td>
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15-16

Total Credits 119-131

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

### Contact

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https://altoona.psu.edu/academics/bachelors-degrees/science (https://altoona.psu.edu/academics/bachelors-degrees/science/)

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