INTEGRATIVE SCIENCE, B.S. (SCIENCE)

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The Integrative 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 across disciplinary areas, and who seek a high degree of flexibility to obtain their educational objectives. After completing foundation courses in biology, calculus, chemistry, physics, and statistics, students select additional science courses from designated areas to customize the curriculum to their own interests. A large number of supporting credits enable students to incorporate significant breadth or specialization into their academic training, such as through courses in business, computer and information science, health science, social science, and other fields.

This major helps prepare students for careers in many different job sectors including agriculture, biotechnology, chemistry, education, government, industry, medicine, pharmaceutical, research & development, sustainability, and more. Graduates of this major pursue diverse career paths and hold a variety of roles such as research scientist, data analyst, technician, program coordinator, project manager, consultant, and laboratory associate. The degree can also be tailored to meet specific requirements of professional programs such as medical, dental, physician assistant, pharmacy, or law school, as well as graduate school.

General Science Option

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

The General Science option of the B.S. Integrative 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: Abington, Berks, Harrisburg, Scranton, York

Mathematical Sciences Option

Available at the following campuses: Abington

Secondary Education Option

Available at the following campuses: Harrisburg

Not all of these options are available at all locations. See the Science program director at your College for details regarding program curriculum at your location.

What is Integrative Science?

The Integrative Science major provides a broad and interdisciplinary foundation in the natural sciences. The Integrative 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 Integrative 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.

Entrance to the Integrative Science Secondary Education option requires the following additional requirements:

1. completed at least one of the following courses, BIOL 220W or BIOL 230W or BIOL 240W; PHYS 250, with a grade of C or better;
2. attained at least a 3.00 cumulative grade-point average;
3. completed ENGL 15 or ENGL 30H;
4. completed 3 credits of literature from a department-approved list with a grade of C or better;
5. completed 6 credits of college-level mathematics (GQ MATH or STAT prefixes) with a grade of C or better;
6. satisfy any entrance testing requirements set out by the Pennsylvania Department of Education in effect at the time of application for the major;
7. submission to the Teacher Education Office of current and clear background checks as required by the Pennsylvania Department of Education;
8. submission of documentation of 20 pre-major fieldwork hours.

Degree Requirements

For the Bachelor of Science degree in Integrative Science with an option in General Science; Biological Sciences and Health Professions; Legal Studies, Government Service, Public Policy; Life Science; and Mathematical Science, a minimum of 120 credits is required, with at least 15 credits at the 400 level. For the Bachelor of Science degree in Integrative Science with an option in Secondary Education, a minimum of 125 credits is required, with at least 15 credits at the 400 level.

Requirement	Credits
General Education	45
Requirements for the Major	90-110

13-30 of the 45 credits for General Education are included in the Requirements for the Major. For the General Science Option; Biological Sciences and Health Professions Option; Legal Studies, Government Service, Public Policy Option; Life Science Option this includes: 9 credits of GN courses and 4-6 credits of GQ courses. For the Mathematical Science Option this includes: 9 credits of GN courses and 6 credits of GQ courses. For the Secondary Education Option this includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses (ENGL 202C); 3 credits of GH courses (literature department list); 6 credits of GS courses (EDPSY 14 and HDFS 239); 3 credits of Integrative Studies courses (EDUC 466N).

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)

Code	Title	Credits
Prescribed Courses		
CHEM 111	Experimental Chemistry I	1
CHEM 112	Chemical Principles II	3
CHEM 113	Experimental Chemistry II	1
Prescribed Courses: Require a grade of C or better		
BIOL 110	Biology: Basic Concepts and Biodiversity	4
CHEM 110	Chemical Principles I	3
MATH 140	Calculus With Analytic Geometry I	4
Requirements for the Option		
Select an option		74-94

Requirements for the Option

General Science Option (74 credits)

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

Code	Title	Credits
Additional Courses		
STAT 200	Elementary Statistics	3-4
or STAT 250	Introduction to Biostatistics	
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics [1]	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II [1]	
Supporting Courses and Related Areas		
Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser		3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser		3
Select 3 credits in Integrative and Applied Sciences from department approved course list in consultation with adviser		3
Select 6 credits of 400-level courses		6
Select 21-26 credits from program list [2,3]		21-26
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 [4,5]		18

1. PHYS 211 and PHYS 250 require a grade of C or better.
2. A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.
3. Students may apply ROTC credits toward the Program List.
4. Only the 9 credits at the 400 level require a grade of C or better.
5. Life sciences include BIOL, BIOTC, BMB, FRNSC, MICRB. Mathematical sciences include CMPSC, DS, MATH, STAT. Physical sciences include ASTRO, CHEM, PHYS.

Biological Sciences and Health Professions Option (74 credits)

Available at the following campuses: University Park

Code	Title	Credits
Prescribed Courses		
HPA 101	Introduction to Health Services Organization	3
Additional Courses		
STAT 200	Elementary Statistics	3-4
or STAT 250	Introduction to Biostatistics	
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
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 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213W	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry - Writing Intensive	
Select 8-12 credits from the following:		8-12

PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics [1]	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II [1]	
Supporting Courses and Related Areas		
Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser		3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser		3
Select 15 credits in Healthcare/Medicine/Ethical Competencies from department approved course list in consultation with adviser [2]		15
Select 9-17 credits from program list [3,4]		9-17
Supporting Courses and Related Areas: Require a grade of C or better		
Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses		9

1. PHYS 211 and PHYS 250 require a grade of C or better.
2. 6 credits must be at the 400-level.
3. A maximum of 12 credits of Independent Studies (296, 496) may be applied toward credits for graduation.
4. Students may apply ROTC credits toward the Program List.

Legal Studies, Government Service, Public Policy Option (74 credits)

Available at the following campuses: University Park

Code	Title	Credits
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 161 & BIOL 162	Human Anatomy and Physiology I - Lecture and Human Anatomy and Physiology I - Laboratory	
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics [1]	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II [1]	
Supporting Courses and Related Areas		
Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser		3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser		3
Select 18 credits in Legal Studies, Government Service, Public Policy from department approved course list in consultation with adviser [2]		18
Select 12-17 credits from program list [3,4]		12-17
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 [5,6]		18

1. PHYS 211 and PHYS 250 require a grade of C or better.
2. 6 credits must be at the 400-level.
3. A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.
4. Students may apply ROTC credits toward the Program List.
5. Only the 9 credits at the 400 level require a grade of C or better.
6. Life sciences include BIOL, BIOTC, BMB, FRNSC, MICRB. Mathematical sciences include CMPSC, DS, MATH, STAT. Physical sciences include ASTRO, CHEM, PHYS.

Life Science Option (74 credits)

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

Code	Title	Credits
Additional Courses		
STAT 200 or STAT 250	Elementary Statistics Introduction to Biostatistics	3-4
Select 4 credits from the following:		4
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
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 & CHEM 203	Fundamentals of Organic Chemistry I and Fundamentals of Organic Chemistry II	
CHEM 210 & CHEM 212 & CHEM 213	Organic Chemistry I and Organic Chemistry II and Laboratory in Organic Chemistry	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics [1]	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II [1]	
Supporting Courses and Related Areas		
Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser		3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser		3
Select 6 credits of 400-level courses		6
Select 21-29 credits from program list [2,3]		21-29
Supporting Courses and Related Areas: Require a grade of C or better		
Select 9 credits of 400-level BMB, BIOL, BIOTC, or MICRB courses		9

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

[2] A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.
[3] Students may apply ROTC credits toward the Program List.

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

Code	Title	Credits
Prescribed Courses		
MATH 220	Matrices	2-3
Prescribed Courses: Require a grade of C or better		
MATH 141	Calculus with Analytic Geometry II	4
Additional Courses		
CMPSC 122	Intermediate Programming	3
or CMPSC 132	Programming and Computation II: Data Structures	
CMPSC 360	Discrete Mathematics for Computer Science	3-4
or MATH 311W	Concepts of Discrete Mathematics	
MATH 230	Calculus and Vector Analysis	4
or MATH 251	Ordinary and Partial Differential Equations	
Select 3 credits from the following:		3
CMPSC 121	Introduction to Programming Techniques	
CMPSC 131	Programming and Computation I: Fundamentals	
CMPSC 201	Programming for Engineers with C++	
Select 3-4 credits from the following:		3-4
STAT 200	Elementary Statistics	
STAT 250	Introduction to Biostatistics	
STAT 318	Elementary Probability	
Select 3-4 credits from the following:		3-4
BIOL 222	Genetics	
BIOL 230W	Biology: Molecules and Cells	
BIOL 322	Genetic Analysis	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
MICRB 201	Introductory Microbiology	
Select 8-12 credits from the following:		8-12
PHYS 211 & PHYS 212 & PHYS 213 & PHYS 214	General Physics: Mechanics and General Physics: Electricity and Magnetism and General Physics: Fluids and Thermal Physics and General Physics: Wave Motion and Quantum Physics [1]	
PHYS 250 & PHYS 251	Introductory Physics I and Introductory Physics II [1]	
Supporting Courses and Related Areas		
Select 3 credits in Global, Social, and Personal Awareness from department approved course list in consultation with adviser		3
Select 3 credits in Teamwork and Interpersonal Communication from department approved course list in consultation with adviser		3
Select 6 credits of 400-level courses		6
Select 13-20 credits from program list [2,3]		13-20
Supporting Courses and Related Areas: Require a grade of C or better		
Select 9 credits of 400-level CMPSC, MATH, or STAT courses		9

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

[2] A maximum of 12 credits of Independent Study (296, 496) may be applied toward credits for graduation.
[3] Students may apply ROTC credits toward the Program List.

SECONDARY EDUCATION OPTION (94 credits)
Available at the following campuses: Harrisburg

Code	Title	Credits
Prescribed Courses		
STAT 200	Elementary Statistics	4
Prescribed Courses: Require a grade of C or better for teacher certification		
EDUC 313	Secondary Education Field Experience	2
EDUC 314	Learning Theory and Instructional Procedures	3
EDUC 315Y	Social and Cultural Factors in Education	3
EDUC 385	Professional Development in Teaching	3
EDUC 400	Diversity and Cultural Awareness Practices in the K-12 Classroom	3
EDUC 414	Teaching Secondary Science	3
EDUC 458	Behavior Management Strategies for Inclusive Classrooms	3
EDUC 459	Strategies for Effective Teaching in Inclusive Classrooms	3
EDUC 490	Student Teaching	9
Prescribed Courses: Require a Grade of C or Better		
EDPSY 14	Learning and Instruction	3
EDUC 466N	Foundations of Teaching English as a Second Language	3
ENGL 202C	Effective Writing: Technical Writing	3
HDFS 239	Adolescent Development	3
MATH 141	Calculus with Analytic Geometry II	4
PHYS 250	Introductory Physics I	4
PHYS 251	Introductory Physics II	4
Additional Courses		
Additional Courses: Require a grade of C or better		
Select 4 credits from the following:		4
BIOL 220W	Biology: Populations and Communities	
BIOL 230W	Biology: Molecules and Cells	
BIOL 240W	Biology: Function and Development of Organisms	
Supporting Courses and Related Areas		
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
Select 9 credits of 400-level earth or physical science courses		9
Select 12 credits of science or education elective courses		12

General Education

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

of a program. For additional information, see the General Education Requirements (https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

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

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN,** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher**:** 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80)). For more information, check the Suggested Academic Plan for your intended program.

Program Learning Objectives

- **Knowledge Application:** Graduates will be able to apply scientific concepts across disciplines.
- **Scientific Process:** Graduates will be able to perform the process of science.
- **Quantitative Reasoning:** Graduates will be able to interpret scientific data using quantitative reasoning skills.
- **Communication:** Graduates will be able to explain scientific concepts through written and verbal communication.
- **Ethical Reasoning:** Graduates will be able to apply ethical reasoning to scientific problems.

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/)

University Park

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

Abington

Les Murray
Program Chair
1600 Woodland Road
Abington, PA 19001
ldm12@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

Scranton

Megan Van Etten, Ph.D.
Assistant Professor, Biology
Dawson Building 212A
Dunmore, PA 18512
570-963-2528
mlv18@psu.edu

York

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

Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2024-25 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.

General Option: Integrative Science, B.S. at University Park 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

Fall	Credits	Spring	Credits
BIOL 110 (GN)*#†	4	CAS 100A, 100B, or 100C (GWS)‡	3
CHEM 110 (GN)*#†	3	CHEM 111 (GN)	1
ENGL 15, 30H, or ESL 15 (GWS)‡	3	CHEM 112	3
MATH 140 or 140B (GQ)*‡#†	4	Global, Social, and Personal Awareness Course (from Department List)	3
PSU 16 (FYS)	1	Supporting Course (Consult with academic adviser for options)	3
		Supporting Course (Consult with academic adviser for options)	3
	15		**16**

Second Year

Fall	Credits	Spring	Credits
CHEM 113	1	BIOL 220W, 230W, 240W, or 161 ***and*** 162	4
Life, Mathematical, or Physical Science Course	3	Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3	Integrative and Applied Science Course (from Department List)	3
Supporting Course (Consult with academic adviser for options)	3	General Education Course (GA)	3
Supporting Course (Consult with academic adviser for options)	3		
General Education Course (GS)	3		
	16		**13**

Third Year

Fall	Credits	Spring	Credits
PHYS 250 or 211 (GN)*#	4	PHYS 251 or 212	4
STAT 250 or 200 (GQ)‡	3-4	400-Level Life, Mathematical, or Physical Science Course*	3
Life, Mathematical, or Physical Science Course	3	ENGL 202C, 202A, 202B, or 202D (GWS)‡	3
General Education Course (Integrative Studies)	3	General Education Course (GH)	3
Supporting Course (Consult with academic adviser for options)	3	Supporting Course (Consult with academic adviser for options)	3
	16-17		**16**

Fourth Year

Fall	Credits	Spring	Credits
PHYS 213 (or Supporting Course)	2	400-Level Life, Mathematical, or Physical Science Course*	3
PHYS 214 (or Supporting Course)	2	400-Level Supporting Course	3
400-Level Life, Mathematical, or Physical Science Course*	3	General Education Course (GHW)	3
400-Level Supporting Course	3	General Education Course (Exploration)	3

General Education Course (Integrative Studies)	3	Supporting Course (Consult with academic adviser for options)	3
	13		**15**

Total Credits 120-121

* 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.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

General Option (ALEKS Placement in MATH 22): Integrative Science, B.S. at University Park 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

Fall	Credits	Spring	Credits
BIOL 110 (GN)*#†	4	CAS 100A, 100B, or 100C (GWS)‡	3
MATH 22	3	CHEM 110 (GN)*#†	3
ENGL 15, 30H, or ESL 15 (GWS)‡	3	MATH 26	3
General Education Course (GS)	3	Global, Social, and Personal Awareness Course (from Department List)	3
PSU 16 (FYS)	1	Supporting Course (Consult with academic adviser for options)	3
	14		**15**

Second Year

Fall	Credits	Spring	Credits
CHEM 111 (GN)	1	BIOL 220W, 230W, 240W, or 161 ***and*** 162	4
CHEM 112	3	CHEM 113	1
MATH 140 or 140B (GQ)*‡#†	4	Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3	Integrative and Applied Science Course (from Department List)	3
Supporting Course (Consult with academic adviser for options)	3	General Education Course (GA)	3
	14		**14**

Third Year

Fall	Credits	Spring	Credits
PHYS 250 or 211 (GN)*#	4	ENGL 202C, 202A, 202B, or 202D (GWS)‡	3
STAT 250 or 200 (GQ)‡	3-4	PHYS 251 or 212	4
Life, Mathematical, or Physical Science Course	3	400-Level Life, Mathematical, or Physical Science Course*	3
General Education Course (Integrative Studies)	3	Life, Mathematical, or Physical Science Course	3
Supporting Course (Consult with academic adviser for options)	3	General Education Course (GH)	3
	16-17		**16**

Fourth Year

Fall	Credits	Spring	Credits
PHYS 213 (or Supporting Course)	2	400-Level Life, Mathematical, or Physical Science Course*	3
PHYS 214 (or Supporting Course)	2	400-Level Supporting Course	3
400-Level Life, Mathematical, or Physical Science Course*	3	General Education Course (GHW)	3
400-Level Supporting Course	3	General Education Course (Exploration)	3
General Education Course (Integrative Studies)	3	Supporting Course (Consult with academic adviser for options)	3
Supporting Course (Consult with academic adviser for options)	3		
	16		**15**

Total Credits 120-121

* 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.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

General Option: Integrative Science, B.S. at Commonwealth Campuses

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
BIOL 110 (GN)*#†	4	CAS 100A, 100B, or 100C (GWS)‡	3
CHEM 110 (GN)*#†	3	CHEM 111 (GN)	1
MATH 140 or 140B (GQ)*‡#†	4	CHEM 112	3
ENGL 15, 30H, or ESL 15 (GWS)‡	3	Global, Social, and Personal Awareness Course (from Department List)	3
First- Year Seminar	1	Supporting Course (Consult with academic adviser for options)	3
		Supporting Course (Consult with academic adviser for options)	3
	15		**16**

Second Year

Fall	Credits	Spring	Credits
CHEM 113	1	BIOL 220W, 230W, 240W, or 161 ***and*** 162	4
Life, Mathematical, or Physical Science Course	3	Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3	Integrative and Applied Science Course (from Department List)	3
General Education Course (GS)	3	General Education Course (GA)	3
Supporting Course (Consult with academic adviser for options)	3		
Supporting Course (Consult with academic adviser for options)	3		
	16		**13**

Third Year

Fall	Credits	Spring	Credits
PHYS 250 or 211 (GN)*#	4	ENGL 202C, 202A, 202B, or 202D (GWS)‡	3
STAT 250 or 200 (GQ)‡	3-4	PHYS 251 or 212	4
Life, Mathematical, or Physical Science Course	3	400-Level Life, Mathematical, or Physical Science Course*	3
General Education Course (Integrative Studies)	3	General Education Course (GH)	3
Supporting Course (Consult with academic adviser for options)	3	Supporting Course (Consult with academic adviser for options)	3
	16-17		**16**

Fourth Year

Fall	Credits	Spring	Credits
PHYS 213 (or Supporting Course)	2	400-Level Life, Mathematical, or Physical Science course*	3
PHYS 214 (or Supporting Course)	2	400-Level Supporting Course	3
400-Level Life, Mathematical, or Physical Science Course*	3	General Education Course (GHW)	3
400-Level Supporting Course	3	General Education Course (Exploration)	3
General Education Course (Integrative Studies)	3	Supporting course (Consult with academic adviser for options)	3
	13		**15**

Total Credits 120-121

* 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.

Legal Studies, Government Service, Public Policy Option: Integrative Science, B.S. at University Park 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

Fall	Credits	Spring	Credits
BIOL 110 (GN)*#†	4	CAS 100A, 100B, or 100C (GWS)‡	3
CHEM 110 (GN)*#†	3	CHEM 111 (GN)	1
MATH 140 or 140B (GQ)*‡#†	4	CHEM 112	3
ENGL 15, 30H, or ESL 15 (GWS)‡	3	Global, Social, and Personal Awareness Course (from Department List)	3
PSU 16 (FYS)	1	Supporting Course (Consult with academic adviser for options)	3
		Supporting Course (Consult with academic adviser for options)	3
	15		**16**

Second Year

Fall	Credits	Spring	Credits
CHEM 113	1	BIOL 220W, 230W, 240W, or 161 ***and*** 162	4
Life, Mathematical, or Physical Science Course	3	Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3	Legal Studies, Government Service, Public Policy Course (from Department List)	3
Legal Studies, Government Service, Public Policy Course (from Department List)	3	General Education Course (GA)	3
General Education Course (GS)	3		
Supporting Course (Consult with academic adviser for options)	3		
	16		**13**

Third Year

Fall	Credits	Spring	Credits
PHYS 250 or 211 (GN)*#	4	PHYS 251 or 212	4
STAT 250 or 200 (GQ)‡	3-4	ENGL 202C, 202A, 202B, or 202D (GWS)‡	3
Life, Mathematical, or Physical Science Course	3	400-Level Life, Mathematical, or Physical Science Course*	3
Legal Studies, Government Service, Public Policy Course (from Department List)	3	Legal Studies, Government Service, Public Policy Course (from Department List)	3
General Education Course (Integrative Studies)	3	General Education Course (GH)	3
	16-17		**16**

Fourth Year

Fall	Credits	Spring	Credits
PHYS 213 (or Supporting Course)	2	400-Level Life, Mathematical, or Physical Science Course*	3
PHYS 214 (or Supporting Course)	2	400-Level Legal Studies, Government Service, Public Policy Course (from Department List)	3
400-Level Life, Mathematical, or Physical Science Course*	3	General Education Course (GHW)	3
400-Level Legal Studies, Government Service, Public Policy Course (from Department List)	3	General Education Course (Exploration)	3
General Education Course (Integrative Studies)	3	Supporting Course (Consult with an academic adviser for options)	3
	13		**15**

Total Credits 120-121

* 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.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Legal Studies, Government Service, Public Policy Option (ALEKS Placement in MATH 22): Integrative Science, B.S. at University Park 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

Fall	Credits	Spring	Credits
BIOL 110 (GN)*#†	4	CAS 100A, 100B, or 100C (GWS)‡	3
MATH 22	3	CHEM 110 (GN)*#†	3
ENGL 15, 30H, or ESL 15 (GWS)‡	3	MATH 26	3
General Education Course (GS)	3	Global, Social, and Personal Awareness Course (from Department List)	3
PSU 16 (FYS)	1	Supporting Course (Consult with academic adviser for options)	3
	14		**15**

Second Year

Fall	Credits	Spring	Credits
CHEM 111 (GN)	1	BIOL 220W, 230W, 240W, or 161 ***and*** 162	4
CHEM 112	3	CHEM 113	1
MATH 140 or 140B (GQ)*‡#†	4	Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3	Legal Studies, Government Service, Public Policy Course (from Department List)	3
Legal Studies, Government Service, Public Policy Course (from Department List)	3	General Education Course (GA)	3
	14		**14**

Third Year

Fall	Credits	Spring	Credits
PHYS 250 or 211 (GN)*#	4	PHYS 251 or 212	4
STAT 250 or 200 (GQ)‡	3-4	ENGL 202C, 202A, 202B, or 202D (GWS)‡	3
Life, Mathematical, or Physical Science Course	3	400-Level Life, Mathematical, or Physical Science Course*	3
Legal Studies, Government Service, Public Policy Course (from Department List)	3	Life, Mathematical, or Physical Science Course	3
General Education Course (Integrative Studies)	3	General Education Course (GH)	3
	16-17		**16**

Fourth Year

Fall	Credits	Spring	Credits
PHYS 213 (or Supporting Course)	2	400-Level Life, Mathematical, or Physical Science Course*	3
PHYS 214 (or Supporting Course)	2	400-Level Legal Studies, Government Service, Public Policy Course (from Department List)	3
400-Level Life, Mathematical, or Physical Science Course*	3	Legal Studies, Government Service, Public Policy Course (from Department List)	3
400-Level Legal Studies, Government Service, Public Policy Course (from Department List)	3	General Education Course (GHW)	3
General Education Course (Integrative Studies)	3	General Education Course (Exploration)	3
Supporting Course (Consult with academic adviser for options)	3		
	16		**15**

Total Credits 120-121

* 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.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Legal Studies, Government Service, Public Policy Option: Integrative Science, B.S. at Commonwealth Campuses

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
BIOL 110 (GN)*#†	4	CAS 100A, 100B, or 100C (GWS)‡	3
CHEM 110 (GN)*#†	3	CHEM 111 (GN)	1
MATH 140 or 140B (GQ)*‡#†	4	CHEM 112	3
ENGL 15, 30H, or ESL 15 (GWS)‡	3	Global, Social, and Personal Awareness Course (from Department List)	3
First-Year Seminar	1	Supporting Course (Consult with academic adviser for options)	3
		Supporting Course (Consult with academic adviser for options)	3
	15		**16**

Second Year

Fall	Credits	Spring	Credits
CHEM 113	1	BIOL 220W, 230W, 240W, or 161 ***and*** 162	4
Life, Mathematical, or Physical Science Course	3	Life, Mathematical, or Physical Science Course	3
Teamwork and Interpersonal Communication Course (from Department List)	3	Legal Studies, Government Service, Public Policy Course (from Department List)	3
Legal Studies, Government Service, Public Policy Course (from Department List)	3	General Education Course (GA)	3
General Education Course (GS)	3		
Supporting Course (Consult with academic adviser for options)	3		
	16		**13**

Third Year

Fall	Credits	Spring	Credits
PHYS 250 or 211 (GN)*#	4	PHYS 251 or 212	4
STAT 250 or 200 (GQ)‡	3-4	ENGL 202C, 202A, 202B, or 202D (GWS)‡	3
Life, Mathematical, or Physical Science Course	3	400-Level Life, Mathematical, or Physical Science Course*	3
Legal Studies, Government Service, Public Policy Course (from Department List)	3	Legal Studies, Government Service, Public Policy Course (from Department List)	3
General Education Course (Intergrative Studies)	3	General Education Course (GH)	3
	16-17		**16**

Fourth Year

Fall	Credits	Spring	Credits
PHYS 213 (or Supporting Course)	2	400-Level Life, Mathematical, or Physical Science Course*	3
PHYS 214 (or Supporting Course)	2	400-Level Legal Studies, Government Service, Public Policy Course (from Department List)	3
400-Level Life, Mathematical, or Physical Science Course*	3	General Education Course (GHW)	3
400-Level Legal Studies, Government Service, Public Policy Course (from Department List)	3	General Education Course (Exploration)	3
General Education Course (Integrative Studies)	3	Supporting Course (Consult with academic adviser for options)	3
	13		**15**

Total Credits 120-121

* 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.

Biological Sciences and Health Professions Option: Integrative Science, B.S. at University Park 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

Fall	Credits	Spring	Credits
BIOL 110 (GN)*#†	4	BIOL 220W, 230W, 240W, or 161 ***and*** 162	4
CHEM 110 (GN)*#†	3	CHEM 111 (GN)	1
MATH 140 or 140B (GQ)*‡#†	4	CHEM 112	3
ENGL 15, 30H, or ESL 15 (GWS)‡	3	Global, Social, and Personal Awareness Course (from Department List)	3
PSU 16 (FYS)	1	Supporting Course (Consult with academic adviser for options)	3
		Supporting Course (Consult with academic adviser for options)	1
	15		**15**

Second Year

Fall	Credits	Spring	Credits
CHEM 113	1	BIOL 222, 230W, 322, BMB 211, BMB 251, MICRB 251, or MICRB 201	3-4
CHEM 210 or 202	3	CHEM 212 or 203	3
HPA 101	3	STAT 250 or 200 (GQ)‡	3-4
Teamwork and Interpersonal Communication Course (from Department List)	3	Healthcare/Medicine/Ethics Course (from Department List)	3
General Education Course (GS)	3	General Education Course (GA)	3
Supporting Course (Consult with academic adviser for options)	3		
	16		**15-17**

Third Year

Fall	Credits	Spring	Credits
CHEM 213W (or Supporting Course)	2	CAS 100A, 100B, or 100C (GWS)‡	3
PHYS 250 or 211 (GN)*#	4	PHYS 251 or 212	4
ENGL 202C, 202A, 202B, or 202D (GWS)‡	3	400-Level BIOL, BIOTC, BMB, or MICRB Course*	3
400-Level BIOL, BIOTC, BMB, or MICRB Course*	3	Healthcare/Medicine/Ethics Course (from Department List)	3
General Education Course (Integrative Studies)	3		
	15		**13**

Fourth Year

Fall	Credits	Spring	Credits
PHYS 213 (or Supporting Course)	2	Healthcare/Medicine/Ethics Course (from Department List)	3
PHYS 214 (or Supporting Course)	2	400-Level Healthcare/ Medicine/Ethics Course	3
400-Level BIOL, BIOTC, BMB, or MICRB Course*	3	General Education Course (GHW)	3
400-Level Healthcare/ Medicine/Ethics Course	3	General Education Course (Exploration)	3
General Education Course (GH)	3	Supporting Course (Consult with academic adviser for options)	3
General Education Course (Integrative Studies)	3		
	16		**15**

Total Credits 120-122

* 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.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Biological Sciences and Health Professions Option (ALEKS Placement in MATH 22): Integrative Science, B.S. at University Park 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

Fall	Credits	Spring	Credits
BIOL 110 (GN)*#†	4	CAS 100A, 100B, or 100C (GWS)‡	3
MATH 22	3	CHEM 110 (GN)*#†	3
ENGL 15, 30H, or ESL 15 (GWS)‡	3	MATH 26	3
General Education Course (GS)	3	Global, Social, and Personal Awareness Course (from Department List)	3
PSU 16 (FYS)	1	Supporting Course (Consult with academic adviser for options)	3
	14		**15**

Second Year

Fall	Credits	Spring	Credits
CHEM 111 (GN)	1	BIOL 220W, 230W, 240W, or 161 ***and*** 162	4
CHEM 112	3	CHEM 113	1
MATH 140 or 140B (GQ)*‡#†	4	CHEM 210 or 202	3
HPA 101	3	STAT 250 or 200 (GQ)‡	3-4
Teamwork and Interpersonal Communication Course (from Department List)	3	Healthcare/Medicine/Ethics Course (from Department List)	3
General Education Course (GA)	3		
	17		**14-15**

Third Year

Fall	Credits	Spring	Credits
CHEM 212 or 203	3	BIOL 222, 230W, 322, BMB 211, BMB 251, MICRB 251, or MICRB 201	3-4
PHYS 250 or 211 (GN)*#	4	CHEM 213W (or Supporting Course)	2
ENGL 202C, 202A, 202B, or 202D (GWS)‡	3	PHYS 251 or 212	4
400-Level BIOL, BIOTC, BMB, or MICRB Course*	3	400-Level BIOL, BIOTC, BMB, or MICRB Course*	3
General Education Course (Integrative Studies)	3	Supporting Course (Consult with academic adviser for options)	1
	16		**13-14**

Fourth Year

Fall	Credits	Spring	Credits
PHYS 213 (or Supporting Course)	2	Healthcare/Medicine/Ethics Course (from Department List)	3
PHYS 214 (or Supporting Course)	2	Healthcare/Medicine/Ethics Course (from Department List)	3
400-Level BIOL, BIOTC, BMB, or MICRB Course*	3	400-Level Healthcare/ Medicine/Ethics Course	3
400-Level Healthcare/ Medicine/Ethics Course	3	General Education Course (GHW)	3
General Education Course (GH)	3	General Education Course (Exploration)	3
General Education Course (Integrative Studies)	3		
	16		**15**

Total Credits 120-122

* 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.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Biological Sciences and Health Professions Option: Integrative Science, B.S. at Commonwealth Campuses

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
BIOL 110 (GN)*#†	4	CAS 100A, 100B, or 100C (GWS)‡	3
CHEM 110 (GN)*#†	3	CHEM 111 (GN)	1
MATH 140 or 140B (GQ)*‡#†	4	CHEM 112	3
ENGL 15, 30H, or ESL 15 (GWS)‡	3	Global, Social, and Personal Awareness Course (from Department List)	3
First-Year Seminar	1	Supporting Course (Consult with academic adviser for options)	3
		Supporting Course (Consult with academic adviser for options)	3
	15		**16**

Second Year

Fall	Credits	Spring	Credits
CHEM 113	1	BIOL 220W, 230W, 240W, or 161 ***and*** 162	4
CHEM 210 or 202	3	CHEM 212 or 203	3
HPA 101	3	STAT 250 or 200 (GQ)‡	3-4
Teamwork and Interpersonal Communication Course (from Department List)	3	Healthcare/Medicine/Ethics Course (from Department List)	3
General Education Course (GS)	3	General Education Course (GA)	3
Supporting Course (Consult with academic adviser for options)	1		
	14		**16-17**

Third Year

Fall	Credits	Spring	Credits
CHEM 213W (or Supporting Course)	2	BIOL 222, 230W, 322, BMB 211, BMB 251, MICRB 251, or MICRB 201	3-4
PHYS 250 or 211 (GN)*#	4	PHYS 251 or 212	4
ENGL 202C, 202A, 202B, or 202D (GWS)‡	3	400-Level BIOL, BIOTC, BMB, or MICRB Course*	3
400-Level BIOL, BIOTC, BMB, or MICRB Course*	3	Healthcare/Medicine/Ethics Course (from Department List)	3
General Education Course (Integrative Studies)	3		
	15		**13-14**

Fourth Year

Fall	Credits	Spring	Credits
PHYS 213 (or Supporting Course)	2	Healthcare/Medicine/Ethics Course (from Department List)	3
PHYS 214 (or Supporting Course)	2	400-Level Healthcare/ Medicine/Ethics Course	3
400-Level BIOL, BIOTC, BMB, or MICRB Course*	3	General Education Course (GHW)	3
400-Level Healthcare/ Medicine/Ethics Course	3	General Education Course (Exploration)	3
General Education Course (GH)	3	Supporting Course (Consult with academic adviser for options)	3
General Education Course (Integrative Studies)	3		
	16		**15**

Total Credits 120-122

* 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.

Career Paths

Penn State students with a BS in Integrative 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 Integrative 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 (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

University Park

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

Berks

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

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

Abington

DIVISION OF SCIENCE AND ENGINEERING
1600 Woodland Road
Abington, PA 19001
ldm12@psu.edu

https://www.abington.psu.edu/academics/majors-at-abington/science (https://www.abington.psu.edu/academics/majors-at-abington/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 (https://harrisburg.psu.edu/science-engineering-technology/science-bs/)

Scranton

Dawson Building 212A
Dunmore, PA 18512
570-963-2528
mlv18@psu.edu (axk55@psu.edu)

https://scranton.psu.edu/academics/degrees/bachelors/science (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 (https://www.york.psu.edu/academics/baccalaureate/science/)