

PHARMACOLOGY AND TOXICOLOGY, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Degree Requirements

For the Bachelor of Science degree in Pharmacology and Toxicology, a minimum of 120 credits is required:

| Requirement | Credits |
|----------------------------|---------|
| General Education | 45 |
| Electives | 0-2 |
| Requirements for the Major | 88-91 |

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

Requirements for the Major

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

| Code | Title | Credits |
|---|---|---------|
| Prescribed Courses | | |
| BBH/HPA 440 | Principles of Epidemiology | 3 |
| BIOL 220W | Biology: Populations and Communities | 4 |
| BIOL 230W | Biology: Molecules and Cells | 4 |
| BMB 211 | Elementary Biochemistry | 3 |
| BMB 212 | Elementary Biochemistry Laboratory | 1 |
| BMB 221 | Applied Biochemistry | 2 |
| CHEM 210 | Organic Chemistry I | 3 |
| CHEM 212 | Organic Chemistry II | 3 |
| CHEM 213W | Laboratory in Organic Chemistry - Writing Intensive | 2 |
| PHYS 250 | Introductory Physics I | 4 |
| PHYS 251 | Introductory Physics II | 4 |
| VBSC 230 | The Science of Poisons | 3 |
| <i>Prescribed Courses: Require a grade of C or better</i> | | |
| BIOL 110 | Biology: Basic Concepts and Biodiversity | 4 |
| CHEM 110 | Chemical Principles I | 3 |
| CHEM 111 | Experimental Chemistry I | 1 |
| CHEM 112 | Chemical Principles II | 3 |
| CHEM 113 | Experimental Chemistry II | 1 |
| ERM/VBSC 431 | Environmental Toxicology | 3 |
| MATH 140 | Calculus With Analytic Geometry I | 4 |
| MATH 141 | Calculus with Analytic Geometry II | 4 |
| VBSC 331 | Pharmacology I: Drug Actions and Reactions | 3 |
| VBSC 430 | Principles of Toxicology | 3 |
| VBSC/BMB 433 | Molecular and Cellular Toxicology | 3 |
| VBSC 438 | Introduction to Molecular Pharmacology | 3 |

Additional Courses

| | | |
|--------------|--|-----|
| BIOL 141 | Introduction to Human Physiology | 3-4 |
| or BIOL 240W | Biology: Function and Development of Organisms | |
| STAT 200 | Elementary Statistics | 3-4 |
| or STAT 250 | Introduction to Biostatistics | |
| VBSC 395 | Internship | 2-3 |
| or VBSC 496 | Independent Studies | |

Supporting Courses and Related Areas

| | | |
|---|--|---|
| <i>Supporting Courses and Related Areas: Require a grade of C or better</i> | | |
| Select 9 credits of 400-level courses from department list | | 9 |

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/students/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/>)). For more information, check the Suggested Academic Plan for your intended program.