PHARMACOLOGY AND TOXICOLOGY, B.S.

Begin Campus: Any Penn State Campus
End Campus: University Park

Degree Requirements
For the Bachelor of Science degree in Toxicology, a minimum of 124 credits is required:

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<th>Requirement</th>
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15 of the 45 credits 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 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

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       |
BIOL 240W  Biology: Function and Development of Organisms | 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 213  Laboratory in Organic Chemistry | 2       |
PHYS 250  Introductory Physics I | 4       |
PHYS 251  Introductory Physics II | 4       |
VBSC 230  The Science of Poisons | 3       |

**Prescribed Courses: Require a grade of C or better**
BIOL 110  Biology: Basic Concepts and Biodiversity | 4       |
BIOL 472  Mammalian Physiology | 3       |
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 431  Environmental Toxicology | 3       |
MATH 140  Calculus With Analytic Geometry I | 4       |
MATH 141  Calculus with Analytic Geometry II | 4       |
VBSC 430  Principles of Toxicology | 3       |
VBSC 433  Molecular and Cellular Toxicology | 3       |
VBSC 438  Introduction to Molecular Pharmacology | 3       |

**Additional Courses**
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**
**Supporting Courses and Related Areas: Require a grade of C or better**
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.)**
- 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.