







2024 - 2025 Major Map

Pharmacology and Toxicology, BS

School/College: [New College of Interdisciplinary Arts and Sciences](#)
ASPTXBS




In order to complete the requirements of this program, some laboratory courses will be completed in-person at the Tempe Campus.



These laboratory courses will be offered during summer. This may impact your financial aid. Financial aid is available to those who apply and qualify, and students may receive funds to help cover costs for each semester of enrollment. The amount of financial aid that a student is eligible for varies depending on prior education experience and other individual factors. [Learn](#) more about summer financial aid and additional ways to cover summer costs.

Term 1 - A 0 - 8 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 BIO 181: General Biology I (SCIT OR SQ)	4	C	<ul style="list-style-type: none"> ASU 101 or college-specific First-Year Seminar required for all first-year students. NEW 101 satisfies this requirement. IAS 300 (three credit hours) is required for all transfer students in place of NEW 101.
ENG 101 or ENG 102: First-Year Composition OR			
ENG 105: Advanced First-Year Composition OR	3	C	
ENG 107 or ENG 108: First-Year Composition			
NEW 101: The ASU New College Experience OR IAS 300: Career Strategies and Personal Resilience (L or SB)	1-3		
Term hours subtotal:	8-10		
Term 1 - B 8 - 15 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 MAT 210: Brief Calculus (MATH OR MA) OR MAT 251: Calculus for Life Sciences (MATH OR MA)	3	C	<ul style="list-style-type: none"> MAT 210 or higher-level MATH accepted. MAT 251 recommended. Students considering graduate school or research may consider the MAT 270 and MAT 271 calculus sequence as an alternative. This may require more than 120 credit hours to complete the degree. View ASU Online first-year student registration information here.
BIO 182: General Biology II (SCIT OR SG)	4	C	
Term hours subtotal:	7		
Term 2 - A 15 - 22 Credit Hours	Hours	Minimum Grade	Notes
CHM 113: General Chemistry I (SCIT OR SQ)	4	C	<ul style="list-style-type: none"> Review the Career Guide for ASU Online students to learn about available career planning resources.
ENG 101 or ENG 102: First-Year Composition OR			
ENG 105: Advanced First-Year Composition OR	3	C	
ENG 107 or ENG 108: First-Year Composition			
Term hours subtotal:	7		
Term 2 - B 22 - 29 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
CHM 116: General Chemistry II (SCIT OR SQ)	4	C	<ul style="list-style-type: none"> Create a first draft resume.
STP 226: Elements of Statistics (QTRS OR CS)	3	C	
 Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Term hours subtotal:	7		
		Minimum	

Term 3 - A 29 - 36 Credit Hours	Hours	Grade	Notes
BIO 201: Human Anatomy and Physiology I (SCIT OR SG)	4	C	<ul style="list-style-type: none"> Plan ahead for in-person laboratory attendance in Summer Term 3 on campus at ASU in Arizona. Contact NCsummerlabs@asu.edu for questions.
CHM 233: General Organic Chemistry I	3	C	
Term hours subtotal:	7		

Term 3 - B 36 - 43 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 CHM 234: General Organic Chemistry II	3	C	<ul style="list-style-type: none"> Develop your research skills. Develop your professional skills. Interested in pre-professional pathways? Explore our pre-health and pre-law websites.
BIO 202: Human Anatomy and Physiology II (SCIT OR SG)	4	C	
 Complete First-Year Composition requirement.			
Complete Mathematics (MATH) requirement.			
Term hours subtotal:	7		

Term 4 - A 43 - 50 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 BCH 371: Modern Concepts in Biochemistry	3	C	<ul style="list-style-type: none"> Plan ahead for in-person laboratory attendance in Summer Term 4 on campus at ASU in Arizona. Contact NCsummerlabs@asu.edu for questions.
 PHY 111: General Physics (SCIT OR SQ) AND PHY 113: General Physics Laboratory (SCIT OR SQ)	4	C	
Term hours subtotal:	7		

Term 4 - B 50 - 57 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 PHY 112: General Physics (SCIT OR SQ) AND PHY 114: General Physics Laboratory (SCIT OR SQ)	4	C	
Humanities, Arts and Design (HUAD)	3		
Term hours subtotal:	7		

Summer 4 57 - 60 Credit Hours	Hours	Minimum Grade	Notes
BCH 372: Modern Concepts in Biochemistry Laboratory OR PTX 372: Modern Biochemical Methods	1	C	<ul style="list-style-type: none"> ASU Online Pharmacology and Toxicology BS students complete experiments for the Organic Chemistry labs (CHM 237 & CHM 238) in person at the ASU Tempe campus during a 1-week session in summer, followed immediately by another in-person 4-day session at the ASU West campus to complete all experiments for the Biochemistry lab (BCH 372). Lab reports will be completed remotely in subsequent weeks during the same summer term. Contact NCsummerlabs@asu.edu for questions. Students may complete PTX 372 as a fully online alternative to BCH 372. Please consult Class Search to determine when PTX 372 is offered. Students interested in pursuing graduate or health profession schools after graduation should research if those programs require in-person experiences for biochemistry. ASU does not offer any fully online alternatives to the organic chemistry labs, CHM 237 & CHM 238.
CHM 237: General Organic Chemistry Laboratory I	1	C	
CHM 238: General Organic Chemistry Laboratory II	1	C	
Term hours subtotal:	3		

Term 5 - A 60 - 67 Credit Hours	Hours	Minimum Grade	Notes
BIO 353: Cell Biology AND BIO 354: Cell Biology Laboratory	4	C	

Upper Division Elective	3		
Term hours subtotal:	7		
Term 5 - B 67 - 74 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ LSC 347: Fundamentals of Genetics AND LSC 348: Fundamentals of Genetics Laboratory	4	C	
Global Communities, Societies and Individuals (GCSI)	3		
Term hours subtotal:	7		
Term 6 - A 74 - 80 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ PTX 301: Basics of Pharmacology and Toxicology	3	C	
Humanities, Arts and Design (HUAD)	3		
Term hours subtotal:	6		
Term 6 - B 80 - 86 Credit Hours	Hours	Minimum Grade	Notes
PTX 432: Fundamentals of Pharmacology	3	C	
Governance and Civic Engagement (CIVI)	3		
Term hours subtotal:	6		<ul style="list-style-type: none"> Thinking about graduate school? Consider registering for a grad school test prep course.
Term 7 - A 86 - 93 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ PTX 475: Principles of Toxicology	3	C	
PTX 450: Pharmacology and Toxicology Laboratory	1	C	
Social and Behavioral Sciences (SOBE)	3		
Term hours subtotal:	7		<ul style="list-style-type: none"> Join Handshake to research internship and employment opportunities. For questions about the New College internship process and requirements, contact NCinternships@asu.edu.
Term 7 - B 93 - 99 Credit Hours	Hours	Minimum Grade	Notes
Upper Division Global and Civic Engagement Requirement: satisfied through completion of 6 credits of upper-division courses with a Global Communities, Societies and Individuals (GCSI) or Governance and Civic Engagement (CIVI) designation, in addition to the courses used to meet the university General Studies requirements; or completion of 3 credits from an ASU-approved Global Education program. Adjustment to upper-division and elective hours is required if a lower-division Global Education course is used.	3	C	
Upper Division Pharmacology and Toxicology Elective	3-5	C	
Term hours subtotal:	6-8		<ul style="list-style-type: none"> Use Handshake to research employment opportunities. Complete an in person or virtual practice interview.
Term 8 - A 99 - 106 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ Upper Division Pharmacology and Toxicology Elective	4	C	
Sustainability (SUST)	3		
Term hours subtotal:	7		<ul style="list-style-type: none"> Gather professional references.
Term 8 - B 106 - 112 Credit Hours	Hours	Minimum Grade	Notes
American Institutions (AMIT)	3		
Upper Division Elective	3		
Term hours subtotal:	6		<ul style="list-style-type: none"> Apply for full-time career opportunities
Term 9 - A 112 - 120 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes

Upper Division Global and Civic Engagement Requirement: satisfied through completion of 6 credits of upper-division courses with a Global Communities, Societies and Individuals (GCSI) or



Governance and Civic Engagement (CIVI) designation, in addition to the courses used to meet the university General Studies requirements; or completion of 3 credits from an ASU-approved Global Education program. Adjustment to upper-division and elective hours is required if a lower-division Global Education course is used.

3

C

- General elective credit hours will be adjusted depending on the Pharmacology/Toxicology electives selected. Discuss with your advisor.

Upper Division Elective	4-1
Elective	1
Term hours subtotal:	8-5

- Upper Division Pharmacology and Toxicology Electives:
 - Complete a minimum of two courses, and at least seven credit hours to complete this requirement.
 - No more than three credits of PTX 484 Internship may apply to the Upper Division Pharmacology and Toxicology Electives.

Hide Course List(s)/Track Group(s)

Upper Division Pharmacology and Toxicology Elective
BIO 439: Computing for Research
CHM 302: Environmental Chemistry
CHM 435: Medicinal Chemistry
FOR 401: Forensic Toxicology
FOR 425: Analytical Chemistry for Life Sciences
FOR 426: Analytical Chemistry for Life Sciences Lab
LSC 430: Environmental and Human Toxicology
MIC 443: The Microbial Universe AND MIC 444: The Microbial Universe Laboratory
PSY 470: Psychopharmacology
PTX 484: Internship
PTX 494: Mechanisms of Pathophysiology and Disease States

- **Total Hours:** 120
- **Upper Division Hours:** 45 minimum
- **University Undergraduate Graduation Requirements**

Notes:

Mathematics Placement Assessment score determines placement in first mathematics course.

General Studies designations listed next to courses on the major map were valid for the 2024 - 2025 academic year. Please refer to the course catalog for current General Studies designations at time of class registration. General Studies credit is applied according to the designation the course carries at the time the class is taken.