

BSPS IN PHARMACOLOGY AND TOXICOLOGY (PTOX)

Pharmacology and toxicology are biomedical sciences that study how to develop safe, effective drugs and prevent the harmful effects of chemicals. Pharmacology focuses on the way drugs interact with various living systems, including the properties, effects and mechanisms of drug action. Toxicology focuses on the interaction of toxic compounds in the body, including exposure assessment, dose response assessment and hazard identification.

BSPS Internship Description

All six majors in the Bachelor of Science in Pharmaceutical Sciences degree program require a real-life workplace internship available in a variety of appropriate settings at local, regional, national and international sites. Most students schedule their internships in the summer after their P1 year. Students are generally assigned to ongoing projects at the site and are evaluated on their performance by the site supervisor. A written internship paper or a technical report and/or a presentation, along with the supervisor's evaluation are submitted to the internship course instructor following completion of the experience.

BSPS and MSPS in Pharmacology/Toxicology (PTOX) Option

The combination of BSPS and MSPS degrees in PTOX gives students the ability and choice to elect to get two degrees in five years. Currently, BSPS students will take 3.5-4 years to graduate and MSPS students will take 2 years. Time and money savings are important for students. This combined degree will take up to 1 year off of the two degrees.

All BSPS degree requirements will remain intact. Classes that are required in BSPS that may be waived for the Master's curriculum with an achieved grade of B- or better will be:

PHCL	5700	Pharmacology I	3
PHCL	5720	Pharmacology II	3
PHCL	5730	Toxicology I	3
PHCL	6700	Pharmacology III	3

Internship must be done in the summer between P1 and P2 with an in house PTOX faculty member who will then be the mentor of the MS degree. This allows ideas and training done in the internship phase to be carried forward in the Master's degree program.

Students will start the master's degree program in the spring after graduation (9 credits). The Master's program will go through the summer (4-6 credits), following fall (10 credits) and spring (9 credits), and a 2 credit summer (if necessary) where the students will defend.

Below is a sample plan of study. Consult your degree audit for your program requirements.

BSPS PHARMACOLOGY/TOXICOLOGY MAJOR CURRICULUM (FOR P1 STUDENTS ENTERING IN FALL 2018 AND AFTER)

PREPROFESSIONAL

Course	Title	Hours
First Term		
PHPR 1000	Orientation	1
MATH 1850	Single Variable Calculus I *	4
CHEM 1230	General Chemistry I *	4
CHEM 1280	General Chemistry Lab I	1
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
Hours		15
Total Hours		15

Course	Title	Hours
Second Term		
PHCL 2610	Introductory Physiology	3
MATH 2640	Statistics for Applied Science *2	3
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
ENGL 1110	College Composition I	3
Diversity of US ³		3
Hours		17
Total Hours		17

Course	Title	Hours
Third Term		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
PHYS 1750	Introduction To Physics ¹	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Social Sciences Core ³		3
Hours		14
Total Hours		14

Course	Title	Hours
Fourth Term		
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
Social Sciences Core ³		3
Arts/Humanities Core ³		3
Arts/Humanities Core ³		3

Non-US Diversity ³	3
Hours	16
Total Hours	16

¹ Only offered during fall semesters

² Not required prior to P1 for BSPS-only applicants

³ If double-dip, PREP courseload reduced by 3 hours. Only one double dip is allowed for the UT Core requirements.

* Students accepted into the College of Pharmacy and Pharmaceutical Sciences should be academically prepared to be placed into MATH 1850 and CHEM 1230. Students placing into a lower math level - MATH 1200, MATH1320 or MATH1750 and/or placing into a lower level chemistry - CHEM 1090 (based on students' testing scores) will require additional hours for graduation.

Students should consult their Degree Audit for coursework that fulfills elective course requirements in the General Education/Core area.

PROFESSIONAL

Course	Title	Hours
Fifth Term		
MBC 3310	Medicinal Chemistry I: Drug Action And Design	2
MBC 3550	Physiological Chemistry I: Structure And Function Of Biological Macromolecules	3
PHCL 3700	PHARMACOLOGY I: PRINCIPLES OF PHARMACOLOGY, AUTONOMIC PHARMACOLOGY AND RELATED PHARMACOLOGY	3
PHCL 4730	Toxicology I	3
Major Electives (Recommend BIOL 3010, BIOL 3020 & MBC 3330) ¹		5-6
Hours		16-17
Total Hours		16-17

Course	Title	Hours
Sixth Term		
MBC 3320	Medicinal Chemistry II: Drug Design and Drug Action	3
MBC 3560	Physiological Chemistry II: Chemical Regulation Of Cells And Organisms	3
PHCL 3730	BSPS Pharmacology II: Endocrine and CNS Pharmacology	3
PHCL 3810	Pharmacology And Toxicology Laboratory ²	1
PHCL 4750	Toxicology II	3
Major Elective (Recommend MBC 3100) ¹		1
Major Elective		3
Hours		17
Total Hours		17

Course	Title	Hours
Seventh Term		
MBC 4710	Targeted Drug Design	3

PHCL 4810	BSPS Pharmacology III: CNS and Cardiovascular Pharmacology	3
Major Elective ¹		9
Hours		15
Total Hours		15

Course	Title	Hours
Eighth Term		
PHCL 4780	Internship in Pharmacology/Toxicology ³	6-12
Hours		6-12
Total Hours		6-12

¹ To be chosen from the PTOX electives list.

² Required for internship and only offered in spring.

³ Internship can be taken in the summer before the P2 year.

All requirements listed above must be fulfilled with a minimum of 120 Semester hours required for graduation.

PTOX ELECTIVES

A total of 18 hours of course work must be selected from the list of elective courses below. Other electives require approval of the PTOX adviser.

Code	Title	Hours
BIOL 3010	Molecular Genetics	3
BIOL 3020	Molecular Genetics Laboratory	2
BIOL 3030	Cell Biology	3
BIOL 3040	Cell Biology Laboratory	2
BIOL 4010	Molecular Biology	3
BIOL 4030	Microbiology	3
BIOL 4050	Immunology	3
BIOL 4110	Human Genetics and Genomics	3
BIOL 4330	Parasitology	3
CHEM 3310	Analytical Chemistry	2
CHEM 3360	Analytical Chemistry Laboratory	2
CHEM 3720	Physical Chemistry For The Biosciences II	3
CHEM 3730	Physical Chemistry I	3
CHEM 3740	Physical Chemistry II	3
CHEM 4300	Instrumental Analysis	2
CHEM 4880	Advanced Laboratory III	2
MBC 3100	Practices in Pharmaceutical Research	1
MBC 3860	Microbiology for Pharmaceutical Professionals	2
MBC 3330	Techniques in Pharmaceutical and Medicinal Chemistry	2
MBC 3340	Techniques in Pharmaceutical and Medicinal Chemistry Laboratory	1
MBC 4300	MEDICINAL CHEMISTRY III: INFECTIOUS DISEASE CHEMOTHERAPY	2
MBC 4470	Advanced Immuno-Therapeutics	2
MBC 4980	Special Topics In Drug Design	1-4
PHCL 4820	BSPS Pharmacology IV: Chemotherapeutic Agents	3

PHCL 4760	Toxicokinetics	3
PHCL 4900	Honors Seminar In Pharmacology	1-3
PHCL 4910	Problems In Pharmacology	1-3
PHCL 4960	Honors Thesis In Pharmacology	2-5