

Pharmacy, PhD

Drug Discovery and Experimental Therapeutics

The Doctor of Philosophy in pharmacy with a subprogram in drug discovery and experimental therapeutics requires 72 s.h. of credit. The degree requires 25 s.h. of didactic coursework, including 15 s.h. of required courses and a minimum of 10 s.h. of interdisciplinary electives. The remaining hours may be fulfilled by research, seminars, additional electives, and the doctoral dissertation. The typical time to complete the degree is five years. Students must maintain a UI cumulative grade-point average of at least 3.00.

The curriculum provides a strong foundational base of knowledge along with options for a tailored experience for students. The program prepares scientists capable of bridging the complex landscape of medicinal chemistry, biotherapeutics, pharmacogenetics/genomics, and basic pharmacology/toxicology.

The Doctor of Philosophy in pharmacy with a subprogram in drug discovery and experimental therapeutics requires the following work.

Required Courses

Students complete all of the following courses. In some instances a course may be waived by the program director due to a student's academic background, but all students must complete at least 15 s.h. in required courses.

Course #	Title	Hours
At least 15 s.h. from these:		
PHAR:5510	Pharmaceutical Sciences and Experimental Therapeutics Seminar	1-2
PHAR:6504	Mastering Reproducible Science	1
PHAR:6515	Perspectives in Drug Discovery	2
PHAR:6820	Drug Discovery and Experimental Therapeutics Research	arr.
BIOS:4120	Introduction to Biostatistics (Fall semester of 1st year)	3
BMED:7270	Scholarly Integrity/ Responsible Conduct of Research I (taken in second year)	0
BMED:7271	Scholarly Integrity/ Responsible Conduct of Research II (taken in second year)	0
Including at least four courses from these:		
PHAR:5400	Principles of Pharmacogenomics	3
PHAR:5512	Drug Discovery and Mechanisms	3
PHAR:5541	Total Synthesis of Biologically Active Natural Products	3
PHAR:5545	Current Medicinal Chemistry	3

PHAR:5549	Analytical Biochemistry	3
PHAR:6501	Principles and Mechanisms of Chemical Toxicology	3
PHAR:7101	Principles of Experimental Therapeutics	3
PHAR:7102	Applied Clinical and Translational Science	3
PHAR:8148	Pharmacokinetics and Dose Optimization	2
or PHAR:4146	Drug Disposition and Pharmacokinetics	

Interdisciplinary Electives

In consultation with their advisor, students select a minimum of 10 s.h. of elective courses that are tailored to the student's specific research area. Students are encouraged to select from the following courses. Additional electives can be selected at the discretion of the advisor.

Biomedical Sciences and Experimental Therapeutics

Course #	Title	Hours
BME:4310/ BMB:4310	Computational Biochemistry	3
BME:5101	Biomaterials and Implant Design	3
BME:5200/ IGPI:5212	Biomedical Signal Processing	3
BME:5335	Computational Bioinformatics	3
GENE:4213/ BIOL:4213/ IGPI:4213	Bioinformatics	2,4
GENE:7191	Human Molecular Genetics	3
HHP:4510	Energetics in Health and Disease	3
MICR:3147	Immunology and Human Disease	3
MICR:3170	Bacterial Genetics	3
MMED:5270/ IGPI:5270/ PATH:5270	Pathogenesis of Major Human Diseases	3
MMED:6220/ ACB:6220/ MPB:6220	Mechanisms of Cellular Organization	3
MMED:6226/ ACB:6226/ MPB:6226	Cell Cycle Control	1
MMED:6227/ ACB:6227/ MPB:6227	Cell Fate Decisions	1
MMED:6230	Pathogenesis of Metabolic and Cardiovascular Disorders	3
MMED:6260	Methods for Molecular and Translational Medicine	1
NSCI:5212/ PSY:5212	Foundations in Behavioral and Cognitive Neuroscience	4
NSCI:5653/ BIOL:5653/ PSY:5203	Fundamental Neurobiology I	3

NSCI:5654/ BIOL:5654/ PSY:5205	Fundamental Neurobiology II	3
PCOL:3101	Pharmacology I: A Drug's Fantastic Journey	3
PCOL:3102	Pharmacology II: Mechanisms of Drug Action	3

Clinical Pharmaceutical Sciences

Course #	Title	Hours
ACB:6200/ GENE:6200	Current Topics in Genetics	1
BIOS:4510	Data Science Foundations in R	2
BIOS:5120/ IGPI:5120/ STAT:5610	Regression Modeling and ANOVA in the Health Sciences	3
BIOS:6610/ IGPI:6610	Statistical Methods in Clinical Trials	3
GENE:4213/ BIOL:4213/ IGPI:4213	Bioinformatics	2,4
IGPI:5110/CS:5110	Introduction to Informatics	3
IGPI:5130/ BIOS:5130	Applied Categorical Data Analysis	3
MMED:5270/ IGPI:5270/ PATH:5270	Pathogenesis of Major Human Diseases	3
PCOL:5136	Pharmacogenetics and Pharmacogenomics	1

Medicinal Chemistry

Course #	Title	Hours
CHEM:4372	Advanced Organic Chemistry	3
CHEM:5321	Spectroscopic Methods in Organic Chemistry	3-4
CHEM:5326	Organic Reactions	3
CHEM:5329	Advanced Organic Synthesis	1-3

Comprehensive Examination

Students take the comprehensive examination between the beginning and end of their third year of graduate study.

Dissertation

The dissertation is defended in a final oral examination.