Pharmacology & Toxicology B.S. Program Summary

PharmTox students have varied destinations that include doctoral programs (different research and research-related fields), medical scientist programs (MD-PhD), professional degree programs (MD, PharmD, DVM, PA, OD, DO and other programs), law school, scientific communications and direct employment. The program philosophy is that a strong, accelerated, integrated background in a wide variety of biomedical sciences, coupled to a fundamental understanding of research serves as the best foundation for all of these future pursuits.

Required courses

Supportive courses

Biochemistry (507, 508, 630)
Genetics (466)
Physiology (335)
Pathophysiology (404)
Statistics (371, 541 or 571)

Goals

- Demonstrated knowledge of each supportive field
- Understand the integration and application of knowledge in the supportive fields with Pharmacology and Toxicology

Major field courses

Pharmacology and discussions (521, 522)
Toxicology and discussions (625, 626)

Goals

- Demonstrated knowledge of Pharmacology
- Demonstrated knowledge of Toxicology
- Analyze and interpret experimental findings in published work in Pharmacology and Toxicology

Research and Research-related (communication and techniques) courses

Pharmacology & Toxicology Laboratory Techniques (558)
Pharmacology Toxicology Seminar (679 (junior), 679 (senior))
Advanced Independent Study (699)

Goals

- Understand the formulation of research questions
- Understand the design and interpretation of research experiments
- Learn and perform laboratory techniques in pursuing research questions

- Understand the application of statistical techniques in interpreting research findings
- Write experimental findings in a form suitable for submission for publication
- Orally present experimental findings to scientific peers
- Write a small grant based on proposed experimental work

Other Educational Concerns

Multiple courses in the curriculum

Goals

- Understand ethical principles in conducting scientific research
- Demonstrate an ability to collaborate with peers in scientific endeavors

Pharmacology & Toxicology B.S. Program Learning Objectives

1. Demonstrate a knowledge and understanding of the supportive biomedical fields of Biochemistry, Genetics, Physiology, Pathophysiology and Statistics.

2. Demonstrate a knowledge and understanding of the major fields of Pharmacology and Toxicology and show an ability to evaluate, interpret, critique and discuss published scientific findings.

3. Perform laboratory techniques and procedures, interpret the results and present in a written form suitable for submission for publication.

4. Formulate a research question, design experimental procedures and provide evidence-based support in a written grant application that contributes to the knowledge in a selected field.

5. Conduct laboratory-based research for an independent project, formulate an oral scientific presentation and deliver the presentation to peers.

6. Apply statistical methods in preparing and interpreting scientific findings.

7. Apply ethical principles in conducting scientific research.

8. Demonstrate an ability to collaborate with peers in scientific endeavors.