

PHARMACOLOGY AND TOXICOLOGY (PHTX)

Subject-area course lists indicate courses currently active for offering at the University of Louisville. Not all courses are scheduled in any given academic term. For class offerings in a specific semester, refer to the Schedule of Classes (<http://htmlaccess.louisville.edu/classSchedule/setupSearchClassSchedule.cfm>).

500-level courses generally are included in both the undergraduate- and graduate-level course listings; however, specific course/section offerings may vary between semesters. Students are responsible for ensuring that they enroll in courses that are applicable to their particular academic programs.

Course Fees

Some courses may carry fees beyond the standard tuition costs to cover additional support or materials. Program-, subject- and course-specific fee information can be found on the Office of the Bursar website (<http://louisville.edu/bursar/tuitionfee/>).

PHTX 606. Seminar 1 Unit

Description: The fall semester of Pharmacology seminar is designed to introduce first- and second-year graduate students to the formal organization of a scientific presentation.

Note: Graded on a Pass-Fail basis.

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PHTX 616. Advanced Pharmacology 1-12 Units

Description: Work conducted outside the thesis area and with a preceptor other than the thesis director. By special arrangement.

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PHTX 617. Laboratory Rotation Research 1 Unit

Description: The purpose of this course is to provide students in search of a laboratory in which to perform thesis/dissertation research the opportunity to become acquainted with the research of particular faculty and the techniques used in that faculty's laboratory. Students will approximately 10-15 hours per week conducting literature surveys and conducting experiments under the direction of graduate faculty mentor. They will function as a member of the laboratory for the duration of the rotation. Rotations are for one-half semester each. Students will do two rotations in a semester. Course may be retaken once.

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PHTX 618. Topics in Pharmacology & Toxicology 1-12 Units

Prerequisite(s): Department majors only.

Description: Topics of current interest in Pharmacology and Toxicology. By special arrangement.

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PHTX 619. Research 1-12 Units

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PHTX 625. Scientific Writing 2 Units

Description: This course is to give students hands-on experience with writing and critiquing scientific papers and proposals. The course will involve both didactic lectures and student presentations and workshops. Students will be graded on their class involvement, presentations, and homework assignments. No special restrictions or conditions are stipulated.

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PHTX 631. Risk Assessment 1 Unit

Description: This one-hour course will introduce students to the historical underpinnings of risk assessment, and to methods, policies, and procedures used by risk assessors in today's governmental bodies. At the conclusion of the course, students should understand how peer-reviewed publications, especially those demonstrating close response, are used in the derivation of acceptable exposure limits. Emphasis will be placed on the estimation of acceptable exposure limits for non-carcinogenic effects of orally encountered chemicals.

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PHTX 632. Analysis of Parametric & Non-parametric Data 2 Units

Description: An introduction to descriptive and inferential statistics including exploratory analysis, graphing, descriptive methods, estimation, confidence intervals, hypothesis testing, correlation, and regression. Students will be introduced to the theory and application of one-, two- and multi-group parametric and non-parametric methods. In addition, students will learn how to calculate the odds or risk of developing disease given an exposure using simple logistic regression analysis. Students will give an oral presentation that incorporates statistical principles learned to their individual graduate research projects.

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PHTX 633. Career Opportunities in the Biomedical Sciences 1 Unit

Grading Basis: Pass/Fail

Description: The goal of this course is to expose biomedical trainees to a range of diverse career options so that they can make confident and informed decisions about the way that they will move their career. Students will have the opportunity to hear from and to interact with professionals that hold positions in non-academic biomedical or biomedically related career fields. Students will complete an Individual Development Plan and learn how to compose a curriculum vita and a resume.

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- PHTX 634. Introduction to Medical Product Regulatory Affairs** 1 Unit
Term Typically Offered: Spring Only
Prerequisite(s): Permission of the course director.
Description: This is a graduate-level course that will familiarize students with basic concepts of regulatory compliance during drug, biologic, and medical device development. Basic concepts to be taught are: 1) Product development life-cycles, focusing on phases of development and stages for interactions with regulatory agencies; 2) Quality control and assurance in the laboratory, manufacturer, and clinic the basis of good practices; 3) Familiarization with FDA guidance documents, ICH guidelines, and the code of federal regulations. Upon completion of the course, students should have an understanding of the relationship between regulators, drug or device developers (bench scientists and clinicians), manufacturers, and patients.
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- PHTX 641. PRINCIPLES PHARMACOLOGY** 3 Units
Term Typically Offered: Fall Only
Prerequisite(s): First-year Pharmacology graduate student or permission of course director.
Description: This is a graduate level course that will provide a foundation of the general principles of pharmacology upon which the students can subsequently build their knowledge in pharmacology. Major topics that will be covered include pharmacodynamics, receptor types and drug-receptor interactions, pharmacokinetics, biotransformation, and pharmacogenomics. The course will progress through the relevant portions of Katzung's Basic & Clinical Pharmacology to introduce these fundamental areas.
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- PHTX 642. Principles, Applications, and Research Methods in Pharmacology** 3 Units
Term Typically Offered: Spring Only
Prerequisite(s): First-year Pharmacology graduate student or permission of course director.
Description: This is a Graduate level course providing a foundation of the general principles, applications, and research methods of pharmacology. The course will progress through Basic & Clinical Pharmacology chapters to introduce the fundamental areas of applied Pharmacology. This will be supplemented by faculty lectures on current research methods in Pharmacology. In addition, student presentations and discussion of assigned research articles will be used to reinforce the fundamental pharmacological principles, applications and research methods. Importantly, research papers and "flipped lectures" presented by students will also give them opportunities to practice presentation skills in delivering formal Pharmacology lectures/research results.
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- PHTX 643. Environmental Toxicology** 3 Units
Term Typically Offered: Fall Only
Prerequisite(s): First year Pharmacology/Toxicology graduate student or permission of the course director.
Description: This is a graduate level course that will provide a foundation of the general principles of toxicology upon which the students can subsequently build their knowledge in toxicology. A major focus of this course is on basic principles, mechanisms and common methods underpinning the science of toxicology. The major emphasis is for students to develop an understanding of how chemicals cause their effect (i.e. mechanisms of toxicity) including molecular and cellular changes through the lens of environmental toxicology. Students will develop a fundamental understanding of how chemicals may exert toxic effects to cause DNA damage and disrupt DNA repair resulting in various diseases highlighting cancer.
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- PHTX 644. Organ Toxicology** 3 Units
Term Typically Offered: Spring Only
Prerequisite(s): First year Pharmacology graduate student or permission of the course director.
Description: This is a graduate level course that will provide a foundation of the main concepts in organ toxicology and the methods used to study organ toxicology. Major topics that will be covered include common toxicities observed in the main body organs and standard as well as novel techniques for studying them. The course is based on Casarett and Doull's "Toxicology - the basic science of poisons" but may also include several specialist modules outside of the textbook.
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- PHTX 652. Geriatric Pharmacology** 1 Unit
Prerequisite(s): PHTX 395 or equivalent.
Description: This course will be offered to senior graduate students and nursing students wishing to expand their knowledge on the pharmacokinetics, drug metabolism, toxicities, distribution and drug dosages and interaction in the elderly.
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- PHTX 661. Molecular Mechanisms of Toxicology** 3 Units
Term Typically Offered: Spring Only
Description: Molecular interactions of drugs and toxicants on cellular processes; including foreign compound metabolism, signal transduction, cell cycle, DNA repair/DNA replication are covered and put in context topics in molecular epidemiology.
Note: Crosslisted with BIOC 661.
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PHTX 667. Advanced Cell Biology 3 Units

Term Typically Offered: Spring Only

Prerequisite(s): One quarter of graduate-level Biochemistry or consent of instructor.

Description: Advanced treatment of contemporary cell biology including membrane structure and function, cytoskeleton, signal transduction, regulation of cell cycle, apoptosis, and molecular mechanisms of cellular differentiation. Spring semester.

Note: Cross-listed with BIOC 667, ASNB 667, BIOL 667 and MBIO 667.

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PHTX 816. Special Project-Pharmacology 1-16 Units

Description: This course is to be arranged to fit individual needs to cover topics of current interest, to participate in research project or to receive some advance training.

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