

PHARMACOLOGY (PHAR)

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PHAR 405 Pharmacology Journal Club (1 Credit Hour)

This course involves students in reading and presenting the scientific literature in journal club format with the goals of learning to, i) evaluate the pharmacological literature and voice a critique in a constructive manner, ii) present such literature in a peer-context, and iii) assimilate information presented by other speakers and formulate, ask, and discuss around relevant appropriate questions.

PHAR 406 Special Problems in Pharmacology (1-4 Credit Hours)

This course covers a specific topic in pharmacological or biomedical sciences. The topics can vary among different special topics courses.

PHAR 407 Fundamentals of Drug Discovery and Development (3 Credit Hours)

This course introduces the process of drug discovery, and students will explore the theoretical and practical aspects of the entire process from concept to clinical trials. Topics include selection, design and use of disease models, current methods and strategies of drug target identification, lead molecule identification, the clinical trial process and pre- and post-market safety.

Outcomes:

Upon completion of this course, the students will have sufficient understanding of the drug discovery process to: 1) Discuss the methods and strategies used to identify potential drug targets; 2) Describe approaches used to screen for lead molecules; 3) Articulate the general FDA regulatory requirements encountered in bringing a new drug to market; 4) Identify requirements for pre-clinical assessment of potential compounds; 5) Define and describe the steps of the clinical trials process; and 6) Articulate and discuss ethical aspects in drug development, including, but not limited to, animal use, clinical trials, intellectual property and research design and integrity

PHAR 408 Molecular Basis of Disease and Therapeutics (3 Credit Hours)

The course focus is on understanding contemporary research in the pathophysiology of major human diseases and in the development of respective therapeutic treatment strategies. Emphasis will be on cutting edge studies in molecular medicine, including topics in cardiology, endocrinology, oncology, inflammatory diseases and in the neurosciences. There are no prerequisites, but students should have a solid understanding of cell and molecular biology, biochemistry and systems physiology.

Outcomes:

Understand contemporary research strategies applicable to investigating the molecular basis of disease and therapeutics and develop critical thinking and writing skills in hypothesis testing, experimental design and data analyses

PHAR 409 Principles of Pharmacology (3 Credit Hours)

This course introduces students to the fundamental principles of pharmacology and the clinical use of the major classes of drugs currently used with a focus upon fundamental concepts. Topics include drugs and their receptors, molecular aspects of drug targets and drug action, pharmacodynamics and the quantitative aspects of drug-receptor interactions, pharmacokinetic properties of drugs influencing drug distribution and drug dosing, drug metabolism and the effects of genetics on drug action, mechanisms of drug toxicity, and scientific approaches to the discovery of new drugs. Finally, the pharmacology and clinical uses of the major classes of drugs, including drugs used to treat diseases of various systems including cardiovascular, central nervous system, endocrine/reproductive systems, and cancer are covered.

PHAR 410 Signal Transduction (3 Credit Hours)

This course is open to all Ph.D., M.D./Ph.D., and M.S. students. Students will gain a theoretical and practical understanding of how extracellular signals are transduced through receptors into metabolic events. It is designed for second year PhD students who have completed the Biomedical Sciences core curriculum. The format is one lecture followed by one research paper discussion for each topic. Students will also gain in-depth knowledge of the signal transduction topics covered in the course.

Outcomes:

Students will be able to interpret data and design experiments examining signal transduction pathways

PHAR 415 Current Topics in Pharmacology and Epidemiology of Disease (2 Credit Hours)

This advanced graduate level course will cover an up-to-date overview of topics directly relevant to pharmacovigilance, pharmacoepidemiology, and the factors that play a role in success or failure of approved therapeutic agents.

Outcomes:

Students who complete this course will gain knowledge of major epidemiology concepts and statistical principles used in epidemiology and pharmacovigilance

PHAR 420 Pharmacovigilance: A Practical Approach (4 Credit Hours)

This advanced graduate level course will provide an up-to-date and in-depth understanding of pharmacovigilance in the context of modern pharmaceutical drug development and pharmacology. Pharmacovigilance is the pharmacological science relating to the detection, collection, assessment, monitoring, and prevention of adverse effects associated with pharmaceutical products. Enrollment Condition: Drug Discovery (PHAR 407), recommended but not required. Students will be able to identify and describe the regulatory environment and product safety as it pertains to the collection, assessment, reporting and analysis of adverse events.

Outcomes:

Upon completion of this course, students will demonstrate an understanding of pharmacovigilance and patient safety

PHAR 453 The Teaching of Pharmacology (1 Credit Hour)

This course teaches the practice and pedagogy of graduate level teaching. Students work under supervision to prepare and present a didactic lecture which is reviewed by faculty and students.

PHAR 499 Research (1-12 Credit Hours)

Independent research for thesis or dissertation under the supervision of a faculty research advisor. Credit varies based upon assigned effort and time spent in the laboratory. Students receive a letter grade from their research advisor.

PHAR 595 Thesis Supervision (0 Credit Hours)

Supervised research and writing leading to the completion of the masters of science thesis and degree.

PHAR 600 Dissertation Supervision (0 Credit Hours)

Supervised research and writing leading to the completion of the Ph.D. dissertation and degree.