

MOLECULAR AND CELLULAR PHARMACOLOGY (MCP)

MCP 701. Seminar. 2 Credit Hours.

Review of related literature, discussion of special topics, student presentations and attendance of faculty/department seminars. Course may be repeated for a total of eight credits.

Components: SEM.

Grading: GRD.

Typically Offered: Fall & Spring.

MCP 704. Mechanisms of Drug Action. 3 Credit Hours.

This course consists of a combination of lectures, problem sessions and student presentations. Students will be given in-depth exposure to the fundamental principles of Pharmacology. The mechanism of action of some specific drug classes will be examined in detail.

Components: LEC.

Grading: GRD.

Typically Offered: Spring.

MCP 731. Special Topics. 1-6 Credit Hours.

Directed readings on subjects not ordinarily treated in depth in specific courses. Course may also consist of special laboratory problems.

Components: LEC.

Grading: GRD.

Typically Offered: Fall, Spring, & Summer.

MCP 732. Cardiovascular Pharmacology. 2-3 Credit Hours.

The course covers cardiovascular pharmacology, necessary cardiovascular physiology and anatomy and the function and pharmacology of the autonomic nervous system. The students learn about the function and energetics of the heart and how it is changed in cardiac disease.

Components: LEC.

Grading: GRD.

MCP 743. Introductory Python Programming for Bioscientists. 3 Credit Hours.

The course is designed to teach the basic of the Python programming language. Students will learn to use code to solve problems related to biological datasets such as genomes, proteomes, and molecular structures.

Components: DIS.

Grading: SUS.

Typically Offered: Spring.

MCP 752. Systems Biology and Approaches in Pharmacology. 3 Credit Hours.

In this course students will discuss the biochemical structure and function of signaling pathways that are most frequently targeted by the pharmaceutical industry. Students will be exposed to novel concepts and findings, in particular with regards to innovative therapeutic applications. Each week will address a different pathway or signaling network, its biological targets and functions, and specific drugs that target it. Each week includes one lecture and one class where students and instructor convene to discuss articles, technical approaches or fundamental questions in the field.

Components: LEC.

Grading: GRD.

Typically Offered: Spring.

MCP 753. Computational Pharmacology and Fundamentals of Drug Design. 3 Credit Hours.

In pharmacology, the importance of computation and bio- and chemo-informatics cannot be overestimated. This course is collectively taught by the MCP faculty and addresses the following four distinct areas. (1) Computer-based analysis of drug-receptor interactions. Students learn principles and specific software packages for in silico docking of drugs to proteins, predict structure-activity relationships and become familiar with programming tools required for such tasks. (2) Using on-line databases to study biological activity, therapeutic indexes, toxicity and other characteristics of drugs and other chemicals. Similarly, they learn to analyze the vast information available for drug targets such as receptor proteins and enzymes. (3) Students learn about pharmacogenomics, an area essential for personalized medicine. Here, they learn, for example, how to predict the reaction of certain populations to particular treatments. (4) Students learn about the drug development pipeline, starting with the design, through screening chemical libraries and to the basics of FDA approval.

Components: LEC.

Grading: GRD.

Typically Offered: Spring.

MCP 768. Neuropharmacology. 2-3 Credit Hours.

An intensive course covering the regulation of neural processes by drugs that target neurotransmitter signaling at the level of GPCRs, G proteins, second-messengers and ion channels.

Components: LEC.

Grading: GRD.

MCP 810. Master's Thesis. 1-6 Credit Hours.

The student working on his/her master's thesis enrolls for credit, in most departments not to exceed six, as determined by his/her advisor. Credit is not awarded until the thesis has been accepted.

Components: THI.

Grading: SUS.

Typically Offered: Fall, Spring, & Summer.

MCP 820. Research in Residence. 1 Credit Hour.

Used to establish research in residence for the thesis for the master's degree after the student has enrolled for the permissible cumulative total in MCP 710 (usually six credits). Credit not granted. May be regarded as full time residence.

Components: LEC.

Grading: GRD.

Typically Offered: Fall, Spring, & Summer.

MCP 830. Dissertation Research-Pre-Candidacy. 1-12 Credit Hours.

Required for all PhD candidates. The student will enroll for credits as determined by their advisor/Office of Graduate and Postdoctoral Studies. No more than 12 hours of research may be taken in a regular semester, and no more than six in a summer session.

Components: THI.

Grading: SUS.

Typically Offered: Fall, Spring, & Summer.

MCP 840. Doctoral Dissertation- Post Candidacy. 1-12 Credit Hours.

Required for all PhD candidates. The student will enroll for credits as determined by their advisor/ Office of Graduate and Postdoctoral Studies but not less than a total of 24. No more than 12 hours of research may be taken in a regular semester, and no more than six in a summer session.

Components: THI.

Grading: SUS.

Typically Offered: Fall, Spring, & Summer.

MCP 850. Research in Residence. 1 Credit Hour.

Student must be registered in the semester they plan to defend. Used to establish research in residence for the PhD after the student has been enrolled for the permissible cumulative total in appropriate doctoral research. Student may be regarded as full-time residence as determined by the Dean of the Graduate School.

Components: THI.

Grading: SUS.

Typically Offered: Fall, Spring, & Summer.