ME.330 (PHARMACOLOGY AND MOLECULAR SCIENCES)

Courses

ME.330.603. Scientific Foundations of Medicine: Pharmacology. 0 - 0 Credits.

ME.330.707. Graduate Pharmacology I. 2 Credits.
This course focuses on the basic concepts related to in vitro and in vivo pharmacology, including the mathematical basis of dose-response curves and pharmacokinetics. It is intended to provide students with a practical working knowledge of how to evaluate the effects of drugs on living systems, as well as an overview of the tools and techniques used to identify and develop pharmacologically active substances.

ME.330.708. Primary Source Readings and Analysis. 0.5 Credits.
This course is a continuation of Primary Source Readings and Analysis from the Fall semester. You must have taken ME.330.708 in the Fall 2022 semester in order to enroll in this continuation.

ME.330.709. Organic Mechanisms in Biology. 2 Credits.
This course focuses on understanding the chemical mechanisms of enzymes and the chemical tools that are used in biomedical research. It is intended to provide students with a practical working knowledge of how to investigate and apply enzymatic reactions and how these systems can be understood using principles derived from organic reaction mechanisms.

ME.330.712. Introduction to Glycobiology. 1 Credit.
Each cell carries a rich and varied sugar coating – its "glycocalyx". From microbial pathogenesis to axon regeneration, the cell's sugar coating is intimately involved in cell-cell recognition. In addition, sugars constitute the extracellular matrix, regulate glycoprotein folding, distribution and function, and regulate intracellular proteins in a dynamic regulatory system akin to phosphorylation. Glycobiology, the discipline that explores the functions of sugars, is rapidly emerging as the next growth area in understanding molecular structure-function relationships beyond the genome and proteome. This course will introduce you to the discipline, its structural diversity, and its functional implications

ME.330.714. Essential Grantsmanship: Writing the Research Grant Proposal. 1 Credit.
This course is required for all students in the Pharmacology graduate program and is designed to provide a mentored opportunity to build grantsmanship skills through direct experience in writing, reading, and reviewing research proposals. During this course, students will be guided through the ins and outs of writing a strong NIH F31-style application, beginning with deciding upon the research topic/question and then writing a truncated grant proposal that contains all of the functional elements. The additional learning goals of the course are to improve communication skills through a series of chalk talks describing their grant objectives and experimental design, learn appropriate procedures in data presentation, data reproducibility, authenticating and validating reagents, data management, and basic statistical analyses. Students will be refreshed in elements for enhancing rigor and reproducibility through use of the 3R modules that are particularly relevant in grant writing (including Experimental Design, Authenticating and Validating Reagents, and Data Presentation). Finally, students will gain critical evaluation skills by reviewing proposals.

ME.330.715. Graduate Pharmacology II. 2 Credits.
This course focuses on the pharmacology of clinically used drugs across different organ systems and disease states. The lectures will be presented by experts in each disease area and cover the mechanism of action, clinical utility, and side effects of clinically useful drugs as well as novel pharmacological approaches.

ME.330.801. Pharmcology Research. 1 - 10 Credits.
Lab Research in Pharmacology

ME.330.802. Topics in Pharmacology. 0.5 Credits.
Biweekly seminar series

ME.330.804. Role of Chromatography and Mass Spectrometry in Biomedical Research. 1 Credit.
The purpose of this course is to give students and post docs the basics on mass spectrometry and chromatography instrumentation, as well as the most up to date analytical techniques and methodology for the qualitative and quantitative study of biomolecules.

ME.330.806. Pharmacology (BCMB) Research. 1 - 18 Credits.
Laboratory Research

ME.330.808. Principles of Clinical Pharmacology. 1 Credit.

ME.330.809. Analytical Methods of Clinical Pharmacology. 1.5 Credits.
Course is designed to familiarize students with basic methods of data analysis for PK and PD data analysis through lecture, demonstration, classroom exercises and homework. Course is designed primarily for biomedical graduate and post-doctoral students with existing undergraduate knowledge of biology and chemistry. Some statistical background is highly beneficial. WinNonlin* will be used to demonstrate analytical methods, perform in class exercises, and complete homework assignments.