

ME.330 (PHARMACOLOGY AND MOLECULAR SCIENCES)

ME.330.300. Research Practicum. 0 Credits.
N/A

ME.330.601. Pharmacology Remediation. 0 Credits.

ME.330.602. Scientific Foundations of Medicine-Pharmacology. 0 Credits.
N/A

ME.330.699. Pharmacology and Molecular Sciences Elective. 0 Credits.

For Medical Students only. Specialized Topics in Pharmacology and Molecular Sciences. Refer to Medical Student Electives Book located at <https://www.hopkinsmedicine.org/som/students/academics/electives.html>.

ME.330.707. Graduate Pharmacology I. 2 Credits.

This course is designed for second year graduate students. It covers basic pharmacology concepts and major drug classes related to disease therapies. The course covers basic principles of enzyme kinetics, receptors, pharmacokinetics, drug metabolism, and drug discovery.

ME.330.708. Primary Source Readings and Analysis. 0.5 Credits.

Students meet in journal club format to critically review research papers related to core courses.

ME.330.709. Organic Mechanisms in Biology. 2 Credits.

This course deals with the chemical mechanisms of enzymes. It is intended to illustrate how catalysis in biological systems can be understood using principles derived from organic reaction mechanisms.

ME.330.710. Mechanisms in Bio-Organic Chemistry. 0 Credits.

This course deals with the mechanisms of action of enzymes, and is intended to introduce some of the basic principle of catalysis and illustrate how our knowledge of organic reaction mechanisms can help in interpreting enzyme-catalyzed processes.

ME.330.711. Virology. 0 Credits.

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.330.713. Nutrition and Chronic Disease Prevention. 0 Credits.

We will examine the ways in which nutrition research, dietary practices, and the economic and social realities of food production, regulation, and policy, impact the health span of aging populations. Central themes include: (a) revealing intrinsic molecular mechanisms that contribute to the pathological process underlying aging and the development of cancer and chronic illness: (b) identifying agents, especially phytochemical and dietary components, that can modify these pathways: (c) examining potential lessons from the mechanisms plants have evolved for their own protection: (d) examining the role that gastrointestinal microbiota play in the relation between nutrition and disease patterns.

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. Additionally, students will 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).

ME.330.715. Graduate Pharmacology II. 2 Credits.

This course is designed for second year graduate students. It covers basic pharmacology concepts and major drug classes related to disease therapies. The course includes lectures on therapeutic agents used in infectious diseases, cancer, cardiovascular diseases, endocrine disorders, inflammation, and nervous system diseases.

ME.330.801. Research. 0 Credits.

Lab Research in Pharmacology

ME.330.802. Topics in Pharmacology. 0.5 Credits.

Biweekly seminar series

ME.330.804. Mass Spectrometry in an Omics World. 1 Credit.

This course will cover instrumentation methods and applications of high performance liquid chromatography and mass spectrometry.

ME.330.805. Introduction to Clinical Pharmacology and Medicine. 0 Credits.

This elective is designed to give graduate students some first hand knowledge of pharmacology in the Hospital or clinic. Students will have the opportunity of joining a clinician seeing/treating patients in the Hospital or in a clinic. This experience will vary as a function of the particular clinician the student is teamed up with but will typically involve a review of the drugs being used, mechanisms of action, modes of administration, toxicities, costs and other considerations in drug use. On inpatient units the students will also join rounds, learning the roles that housestaff, nurses, pharmacist, specialty fellow and others play in patient care. Typically a written report or presentation is expected at the end of the elective.

ME.330.806. Research - Pharmacology (BCMB). 0 Credits.

Thesis Research

ME.330.807. Clinical Pharmacology Clinical Conference. 0 Credits.

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

A series of recorded lectures by experts from around the country form the bases for a presentation/discussion course that covers the spectrum of clinical pharmacology: pharmacokinetics, drug metabolism and transport, assessment of drug effects, and drug therapy in special populations. One and one half hours for each lecture/discussion. Required course for Clinical Pharmacology fellows.

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.

ME.330.810. Laboratory Basics. 0 Credits.

ME.330.811. Programmed Cell Death and Autophagy. 0 Credits.

Short elective course consists of short lectures, readings, discussions and short assignments on the molecular and cellular biology of programmed cell death and autophagy. Topics include classical and emerging death pathways (e.g. apoptosis, necroptosis, pyroptosis, ferroptosis), autophagy mechanisms (e.g. macroautophagy, mitophagy, chaperone-mediated autophagy) in physiology and disease (e.g. cancer, neurodegeneration, infection and immunity), and crosstalk between these processes. Evaluation based on readings, in-class contributions and short assignments.