

ME.330/360 (PHYSIOLOGY, PHARMACOLOGY AND THERAPEUTICS)

Courses

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.330.714. 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. Pharmacology Research. 1 - 18 Credits.

Lab Research in Pharmacology

ME.330.802. Topics in Physiology, Pharmacology & Therapeutics. 0.5 Credits.

Biweekly seminar series

ME.330.806. Research - PP&T (BCMB). 1 - 18 Credits.

Laboratory Research

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.360.720. Organ Systems-Physiology. 6 Credits.

The course provides a basic understanding of the many different aspects of the internal structure and function of the body. It aims to present a comprehensive survey of the complex interrelationships that exist between the structure and function of cells and organs.

ME.360.728. Pathways and Regulation. 2 Credits.

This course will cover the principles of membrane transport, bioenergetics, metabolic pathways, cell cycle and cell death with particular emphasis on regulatory mechanisms including receptor-mediated signaling, small GTPases, lipid molecules, kinases and phosphatases.

ME.360.800. Physiology Research. 1 - 18 Credits.

Lab Research

ME.360.801. Physiology, Pharmacology & Therapeutics Seminar Series. 0.5 Credits.

Students are required to attend all Physiology Department Seminars, which will be posted throughout the department. Also, students are required to attend 12 luncheons with seminar speakers. For six of the seminars, the students will be required to read a relevant paper from the speaker's lab prior to the seminar (a relevant paper can be found by searching the web). After the seminar, students will write and submit a 1 page (12 point, Times New Roman) document describing 1 or 2 "next experiments", which significantly extend or otherwise enhance the findings of a part of the seminar they attended. (Dr. Steven Claypool will review the 1st seminar summary for formatting.) The objective of this exercise is to go beyond understanding the work that was presented by the speaker, and encourage students to think about gaps in knowledge, formulate the next important questions, and design experiments that move a field forward. Grades will be based upon attendance (50%) and the summaries (50%).

ME.800.732. CMP Independent Study Elective. 1 - 3 Credits.

Independent study courses must be germane to the student's studies in physiology, as determined by the Program Director, and are supervised and evaluated by Johns Hopkins University faculty, who determine credit and Pass/Fail grading. Instruction may include synchronous and/or asynchronous online components, including external platforms used to support instruction; however, external content does not serve as the basis for awarding academic credit. Typically, 3 hours of student effort per week are expected for each 1 credit hour.