

PHCO 702

Short title Principles of Pharmacology

Long title Principles of Pharmacology and Physiology

Effective term Spring

Course units/hours 3 credit hours M/W/F 9:05am-9:55am in 4007 Genetic Medicine Bldg.

Grading basis (GRAD – H,P,L, F)

Course Component (lecture or lab) lecture

Course Description

This is a graduate-level course that introduces students to the major areas of pharmacological and physiological principles of drug action and serves for a basis for advanced courses; registration is by permission of the instructor.

Short version:

Prerequisites include PHCO 701; CHEM 430; registration by instructor permission.

Course objectives (learning outcomes):

The objectives of this course are to provide graduate students in biomedical research programs familiarity with the pharmacologic principles involved in the drug therapy of disease. Students will increase critical thinking skills in the context of the specific topics listed in the syllabus which includes drug intervention for diseases of the major organ systems of the human body. By the end of this course students should be familiar with therapeutic approaches to the use of drugs to treat major diseases relating to the autonomic nervous system, cardiovascular and renal system, cancer, endocrine functions, bacterial infection and the central nervous system. Students should have working knowledge sufficient to apply those principles to new research topics and to propose appropriate strategies to solve relevant research questions.

Course Assignments

Reading assignments may be posted by the individual instructors and will be a combination of review articles, research papers of seminal importance to the field, and recent research articles of significant impact. There may be written assignments will be quizzes/homework and short essay-style exams designed to test both the assimilation of the readings and the application of principles to new scientific scenarios posted by individual instructors.

Assessments

Achievement of course objectives and individual student grades will be determined from a set of four exams given in class at regular intervals after each section of the course (I. Autonomic/autacoid/endocrine, II. CV/Renal III. Central Nervous System, IV. Chemotherapy). . By the end of the course, students should demonstrate a working vocabulary in the field and have a working knowledge of the application of pharmacologic principles to drug therapy.

Pharmacology 702 (Spring 2020)
Principles of Pharmacology
Mon/Wed/Fri 9:00-9:50 Room 4007, Genetic Medicine Bldg
Course Director: Terry Kenakin, Rm 4042 Genetic Medicine Bldg.
(kenakin@email.unc.edu)

1/8/2020	Wed.	Herman	Introduction to the ANS	Block Leader Melissa Herman ANS Drugs and how they are utilized	
1/10/2020	Fri	Fiordalisi	Sympathetic NS and Autonomic NS Physiology		
1/13/2020	Mon	Fiordalisi	Sympathetic Nervous System Pharmacology		
1/15/2020	Wed	Herman	Parasympathetic Pharmacology		
1/17/2020	Fri	Fiordalisi/ Herman	Autonomic NS pharmacology: Summary and practice		
1/20/2020	Mon.	Martin Luther King Day- no classes			
Take Home Exam 1 (5 lectures)					
1/22/2020	Wed.	Fiordalisi	Introductory lecture on neuroscience and the brain	Block Leader Juan Song CNS	
1/24/2020	Fri	Fiordalisi	Introductory lecture on neuroscience and the brain		
1/27/2020	Mon.	Song	Neurogenesis and its relevance to CNS therapeutics		
1/29/2020	Wed.	Roth	pharmacotherapy of drug abuse relegated circuitry		
1/31/2020	Fri.	Kash	circuitry-based thrapeutics with highlight of anxiety and depression		
2/3/2020	Mon.	Kash	circuitry-based thrapeutics with highlight of anxiety and depression		
2/5/2020	Wed.	Herman	pharmacotherapy of alcohol related disorders/ circuitry		
2/7/2020	Fri.	EXAM 2	In Class Exam (7 lectures)		
2/10/2020	Mon.	Duncan	Anti-inflammatory mechanisms and drugs		Block Leader Terry Kenakin Cardiovascular Anti-Inflammatory
2/12/2020	Wed.	Duncan	Anti-inflammatory mechanisms and drugs		
2/14/2020	Fri.	Kenakin	CV Heart Failure		
2/17/2020	Mon.	Kenakin	Cardiac Angina		
2/19/2020	Wed.	Mackman	clotting factors		
2/21/2020	Fri	Kenakin	Diuretics		
2/24/2020	Mon.	Graves	Antihypertensives		
2/26/2020	Wed.	Kenakin	Respiratory / pulmonary pharmacology		
		EXAM 3	Take Home Exam 3 (8 lectures)		
2/28/2020	Fri	Fiordalisi	Introduction to antimicrobials: Mechanisms of action	Block Leaders Fiordalisi/Nicholas Antimicrobials Antivirals	
3/2/2020	Mon.	Fiordalisi	Introduction to antimicrobials: Mechanisms of resistance		
3/4/2020	Wed.	Nicholas	Peptidoglycan synthesis/inhibition by b-lactams		
3/6/2020	Fri	Nicholas	Resistance mechanisms to b-lactam antibiotics		
3/9/2020	Mon.	SP. BK.			
3/11/2020	Wed.	SP. BK.			
3/13/2020	Fri	SP. BK.			
3/16/2020	Mon.	Conlon	Antibiotic tolerance in polymicrobial infections		
3/18/2020	Wed.	EXAM4	In Class Exam 4 (5 lectures)		
3/20/2020	Fri.	TBD	Cancer Chemotherapy	Block Leader Lee Graves Cancer / Inflammation	
3/23/2020	Mon	Graves	Molecular Targeted therapeutics in cancer		
3/25/2020	Wed.	Graves	advanced cancer therapy		
3/27/2020	Fri	Emanuele	Targeting the ubiquitin system in cancer		
3/30/2020	Mon	Der	RAS as a therapeutic target		
4/1/2020	Wed	EXAM 5	Exam 5 (6 lectures)		
4/3/2020	Fri	Kenakin	Pharmacodynamics I: Affinity, Efficacy	Block Leader Terry Kenakin Drug Discovery Pharmacodynamics Pharmacokinetics	
4/6/2020	Mon	Kenakin	Antagonism : Orthosteric , Allosteric		
4/8/2020	Wed	Hahn	Pharmacokinetics I		
4/10/2020	Spring Holiday				
4/13/2020	Fri	Hahn	Pharmacokinetics 2		
4/15/2020	Mon	Hahn	Pharmacokinetics 3		
4/17/2020	Mon	Kenakin	Highthroughput screening/ Safety Pharmacology		
4/20/2020	Mon	Kenakin	Safety Pharmacology / clinical Trials/Drug approval(s)+		
4/22/2020	Wed	EXAM 6	In Class Exam 6 (7 lectures)		