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 froma 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 2018)
Principles of Pharmacology
Mon/Wed/Fri 9:00-9:50 Room 4007, Genetic Medicine Bldge
Course Director: Terry Kenakin, Rm 4042 Genetic Medicine Bldg.
(kenakin@email.unc.edu)

Fiordalisi	Introduction to the ANS	**Block Leader**
Fiodalisi	Sympathetic NS and sympathetic pharmacology	**Melissa Herman**
Holiday		
Herman	Parasympathetic Nervous System	**ANS Drugs**
Herman	Parasymphathetic Pharmacology	**and how they are utilized**
Fiordalisi	Autonomic NS pharmacology: Summary and practice	
	Take Home Exam 1 (5 lectures)	
Fiordalisi	Introductory lecture on neuroscience and the brain	
Fiordalisi	Introductory lecture on neuroscience and the brain	**Block Leader**
Song	Neurogenesis and its relevance to CNS therapeutics	**Juan Song**
Kash	circuitry-based thrapeutics with highlight of anxiety and depression	
Kash	circuitry-based thrapeutics with highlight of anxiety and depression	**CNS**
Herman	pharmacotherapy of alcohol related disorders/ circuitry	
Roth	pharmacotherapy of drug abuse relegated circuitry	
EXAM 1	**In Class Exam 1 (7 lectures)**	
Duncan	Anti-inflammatory mechanisms and drugs	**Block Leader**
Duncan	Anti-inflammatory mechanisms and drugs	**Terry Kenakin**
Kenakin	CV Heart Failure	
Kenakin	Cardiac Angina	**Cardiovascular**
Mackman	clotting factors	**Anti-Inflammatory**
Kenakin	Diuretics	
Graves	Antihypertensives	
Kenakin	Respiratory / pulmonary pharmacology	
	Take Home Exam 2 (8 lectures)	
Fiordalisi	Introduction to antimicrobials: Mechanisms of action	
Fiordalisi	Introduction to antimicrobials: Mechanisms of resistance	
Nicholas	Peptidoglycan synthesis/Inhibition by b-lactams	**Block Leaders**
Nicholas	Resistance mechanisms to b-lactam antibiotics	
SP. BK.		**Fiordalisi/Nicholas**
SP. BK.		
SP. BK.		**Antimicrobials**
Conlon	Antibiotic tolerance in polymicrobial infections	**Antivirals**
EXAM2	**In Class Exam 2 (5 lectures)**	
Graves	Molecular Targeted therapeutics in cancer	
Der	Cancer Chemotherapy	
Der	Cancer Chemotherapy	**Block Leader**
Holiday		**Lee Graves**
Emanuele	Cell cycle therapy in cancer	**Cancer / Inflammation**
Emanuele	Immunotherapy in Cancer	
Graves	advanced cancer therapy	
	Take Home Exam 3 (6 lectures)	
Hahn	Pharmacokinetics 1	**Block Leader**
Hahn	Pharmacokinetics 2	**Terry Kenakin**
Holiday		
Hahn	Pharmacokinetics 3	**Drug Discovery**
Kenakin	Pharmacodynamics I- Affinity, Efficacy	**Pharmacodynamics**
Kenakin	Antagonism (Orthosteric/ Allosteric)	**Pharmacokinetics**
Kenakin	Highthroughput screening/ Safety Pharmacology	
Kenakin	Safety Pharmacology / clinical Trials/Drug approval(s)+	
EXAM 3	**In Class Exam 3 (7 lectures)**	