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 2019)
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)

1/9/2019	Wed.	Fiordalisi	Introduction to the ANS	**Block Leader**
1/11/2019	Fri	Fiodalisi	Sympathetic NS and Autonomic NS Physiology	**Melissa Herman**
1/14/2019	Mon	Fiordalisi	Sympathetic Nervous System Pharmacology	**ANS Drugs**
1/16/2019	Wed	Herman	Parasymphathetic Pharmacology	**and how they are utilized**
1/18/2019	Fri	Fiordalisi	Autonomic NS pharmacology: Summary and practice	
1/21/2019	Mon.	Martin Luther King Day- no classes		
		Take Home Exam 1 (5 lectures)		
1/23/2019	Wed.	Fiordalisi	Introductory lecture on neuroscience and the brain	**Block Leader**
1/25/2019	Fri	Fiordalisi	Introductory lecture on neuroscience and the brain	**Juan Song**
1/28/2019	Mon.	Song	Neurogenesis and its relevance to CNS therapeutics	
1/30/2019	Wed.	Roth	pharmacotherapy of drug abuse relegated circuitry	**CNS**
2/1/2019	Fri.	Kash	circuitry-based thrapeutics with highlight of anxiety and depression	
2/4/2019	Mon.	Herman	pharmacotherapy of alcohol related disorders/ circuitry	
2/6/2019	Wed.	Kash	circuitry-based thrapeutics with highlight of anxiety and depression	
2/8/2019	Fri.	**EXAM 2**	**In Class Exam (7 lectures)**	
2/11/2019	Mon.	Duncan	Anti-inflammatory mechanisms and drugs	**Block Leader**
2/13/2019	Wed.	Duncan	Anti-inflammatory mechanisms and drugs	**Terry Kenakin**
2/15/2019	Fri.	Kenakin	CV Heart Failure	
2/18/2019	Mon.	Kenakin	Cardiac Angina	**Cardiovascular**
2/20/2019	Wed.	Mackman	clotting factors	**Anti-Inflammatory**
2/22/2019	Fri	Kenakin	Diuretics	
2/25/2019	Mon.	Graves	Antihypertensives	
2/27/2019	Wed.	Kenakin	Respiratory / pulmonary pharmacology	
		EXAM 3	**Take Home Exam 3 (8 lectures)**	
3/1/2019	Fri	Fiordalisi	Introduction to antimicrobials: Mechanisms of action	
3/4/2019	Mon.	Fiordalisi	Introduction to antimicrobials: Mechanisms of resistance	
3/6/2019	Wed.	Nicholas	Peptidoglycan synthesis/Inhibition by b-lactams	**Block Leaders**
3/8/2019	Fri	Nicholas	Resistance mechanisms to b-lactam antibiotics	
3/11/2019	Mon.	SP. BK.		**Fiordalisi/Nicholas**
3/13/2019	Wed.	SP. BK.		
3/15/2019	Fri	SP. BK.		**Antimicrobials**
3/18/2019	Mon.	Conlon	Antibiotic tolerance in polymicrobial infections	**Antivirals**
3/20/2019	Wed.	**EXAM4**	**In Class Exam 4 (5 lectures)**	
3/22/2019	Fri.		Departmental Retreat- Student Study Day	
3/25/2019	Mon	Der	Cancer Chemotherapy	
3/27/2019	Wed.	Der	Cancer Chemotherapy	**Block Leader**
3/29/2019	Fri	Emanuele	Targeting the ubiquitin system in cancer	**Lee Graves**
4/1/2019	Mon	Graves	Molecular Targeted therapeutics in cancer	**Cancer / Inflammation**
4/3/2019	Wed	Graves	advanced cancer therapy	
		EXAM 5	**Take Home Exam 5 (6 lectures)**	
4/5/2019	Fri	Hahn	Pharmacokinetics 1	**Block Leader**
4/8/2019	Mon	Hahn	Pharmacokinetics 2	**Terry Kenakin**
4/10/2019	Wed	Hahn	Pharmacokinetics 3	
4/12/2019	Fri	Kenakin	Pharmacodynamics I- Affinity, Efficacy	**Drug Discovery**
4/15/2019	Mon	Kenakin	Antagonism (Orthosteric/ Allosteric)	**Pharmacodynamics**
4/17/2019	Mon	Kenakin	Highthroughput screening/ Safety Pharmacology	**Pharmacokinetics**
4/19/2019	Fri		Holiday	
4/22/2019	Mon	Kenakin	Safety Pharmacology / clinical Trials/Drug approval(s)+	
4/24/2019	Wed	**EXAM 6**	**In Class Exam 6 (7 lectures)**	