

**SYLLABUS**  
**Advanced Pharmacology (PHAR 6206)**  
**Wednesdays: 2:00pm – 4:00 pm (Ross Hall 529)**

**COURSE DESCRIPTION:**

Lectures on the interactions of drugs and specific organ systems. Tutorials on current research in pharmacology and toxicology. Basic principles of pharmacology, including receptor mechanisms, drug distribution and metabolism, and pharmacokinetics. Lectures, laboratories, and tutorials on the interactions of drugs and biological systems as a basis for rational disease therapy.

**LEARNING OBJECTIVES:**

By the end of this course, each student should be able to:

1. Identify the fundamental principles of pharmacokinetics and pharmacodynamics.
2. Apply the pharmacodynamic and pharmacokinetic principles that describe drug actions in humans.
3. Compare and contrast the specific pharmacology of the major classes of drugs, important distinctions among members of each class, the risks and benefits, in relation to the organ systems they affect, and the diseases for which they are used therapeutically.
4. Identify the role of molecular genetics and genomic principles in pharmacotherapeutics and drug development.

**CREDIT HOURS:** 5

**PREREQUISITE:** PHAR 6205

**LECTURE CONTACT TIME/HOURS:** one two hour-long session per week plus lecture sessions on individual drugs.

**METHOD OF ASSESSMENT:** The final grade will be calculated from Examination, Journal Club and Drug Ads participation.

**EXAMINATIONS:**

During the course we will give 4 Exams. The individual exams will cover all the material covered during the specified section. There will be four questions per lecture hour on each exam. PLEASE NOTE: EXAMS WILL COVER THE PHARMACOLOGY OF THE DRUGS PRESENTED IN CLASS. Emphasis will be place on a given drug/drug class's:

- a) pharmacological target,
- b) therapeutic effect,
- c) potentially serious adverse/side effects and
- d) contraindications, drug/gene interactions.

A student who misses an exam and provides an excuse acceptable to the course coordinator (Dr. O'Brien) will be allowed to take a make-up exam at a time designated by the course coordinator. Missing an exam without an accepted excuse will result in a grade of zero for that exam.

**REQUIRED TEXTS:** None

There are many textbooks of pharmacology available. We recommend "Basic and Clinical Pharmacology" by Katzung ("Basic and Clinical Pharmacology" by Katzung (McGraw Hill Lange, 12th edition, 2012) as a suitable text for the course (See lecture schedule for chapters covered by each session). The major content of the course will be presented in lecture and/or handouts. Each handout will provide a list of learning objectives as well as a drug list of the specific pharmacologic agents that students are expected to know. The textbook should serve as a source for clarification and elaboration and for future use as a source for more detail on specific drugs not covered in the course. The book is available on the GWUMC library website (<http://libguides.gwumc.edu/content.php?pid=60105&sid=441899>). In addition, it is your responsibility to review the relevant physiological and biochemical principles prior to each lecture.

**GENOTYPING PROJECT**

As a part of the course, we will be offering students and faculty the opportunity to be genotyped for SNPs in the CYP2D6 gene (GWUMC IRB# 120626). Samples (buccal swipes) are schedule to be collected sometime in February, analyzed and the data discussed in class in April. STUDENTS WILL NOT BE REQUIRED TO SUBMIT SAMPLES AS PART OF THEIR GRADE AND INFORMED CONSENT WILL BE OBTAINED FROM ALL PARTICIPANTS. Dr. O'Brien will not have any knowledge as to the identity of the individuals who did/did not participate in the study. All samples will be labeled with an anonymous identification number.

**CLASS POLICIES**

Attendance policy: not mandatory, except where indicated

Late work: accepted with permission, penalty may be incurred if unduly late as determined by instructor

Religious Holidays: will be accommodated if requested [NOTE: for university policies on teaching, see <http://www.gwu.edu/~academic/Teaching/main.htm>]

Please note that you will need to provide your GWID number G\*\*-\*\*\*-\*\*\* for each exam. Following each exam, Dr. O'Brien will notify each student whose examination performance indicates a need for concern over the student's grasp of the material. Students who are having difficulty with a certain subject matter are encouraged to meet with the course coordinator. Please contact the course coordinator to make an appointment to meet at a mutually agreeable time. In addition, a list of faculty offices and telephone numbers is attached.

**GRADING:**

Grades are determined by the departmental faculty based on your entire performance in the course. Based on previous classes, a grade of "A" was generally awarded to students with a final average approximately 1 standard deviation above the class average. Grades that were at or below 1.5 standard deviations below the mean generally received a grade of "C". Finally, a course score below 2 standard deviations below the mean has generally been the basis for a grade of F.

**BLACKBOARD:**

Pharmacology 6206 materials are also available through the Blackboard portal. Lecture notes and slides for each week's material will be posted as soon as possible. To log onto Blackboard,

you must have registered for the course and have a gwu email address. In addition, all lectures, except those that occur on Wednesdays from 2-4 PM will be recorded for online viewing by Panopto.

### **ACADEMIC INTEGRITY**

I personally support the GW Code of Academic Integrity. It states: “Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information.” For the remainder of the code, see: <http://www.gwu.edu/~ntegrity/code.html>

### **SUPPORT FOR STUDENTS OUTSIDE THE CLASSROOM**

#### *DISABILITY SUPPORT SERVICES (DSS)*

Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in the Marvin Center, Suite 242, to establish eligibility and to coordinate reasonable accommodations. For additional information please refer to: <http://gwired.gwu.edu/dss/>

#### *UNIVERSITY COUNSELING CENTER (UCC) 202-994-5300*

The University Counseling Center (UCC) offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. Services for students include:

- crisis and emergency mental health consultations
  - confidential assessment, counseling services (individual and small group), and referrals
- <http://gwired.gwu.edu/counsel/CounselingServices/AcademicSupportServices>

### **SECURITY**

In the case of an emergency, if at all possible, the class should shelter in place. If the building that the class is in is affected, follow the evacuation procedures for the building. After evacuation, seek shelter at a predetermined rendezvous location.

#### **Course Director:**

Dr. Travis O'Brien

[phmtjo@gwu.edu](mailto:phmtjo@gwu.edu)

202-994-3373

<b>Date</b>	<b>Topic</b>	<b>Lecturer</b>	<b>Time</b>
13-Jan	GI Drugs	Dr. Ceryak	3-5 PM
20-Jan	Pharmacology Session Anesthesia		2-4 PM
	Local Anesthetics (Panopto)	Dr. Lee	
	General Anesthetics (Panopto)	Dr. Mendelowitz	
27-Jan	Pharmacology Session Endocrine	Dr. O'Brien	2-4 PM
29-Jan	Drugs for Diabetes	Dr. Ceryak	11-12 PM
5-Feb	Drugs for Thyroid	Dr. Werling	10-11 AM
10-Feb	Pharmacology Session Reproduction	Dr. O'Brien	2-4 PM
17-Feb	<b>Exam 1 (1/13-2/5)</b>		<b>2-4 PM</b>
26-Feb	Uterine Drugs	Dr. O'Brien	8-8:30 AM
	Drugs and Sex	Dr. O'Brien	8:30-10 AM
	Drugs for Breast Cancer	Dr. Lee	10-11 AM
29-Feb	Reproductive Toxicology	Dr. Schialli	8:30-10:00 AM
2-Mar	Contraceptive Methods with PA Students	Drs. O'Brien/Catalanotti/Lesko/Jamshidi	8:00-11AM
9-Mar	<b>Exam 2 (2/10-3/2)</b>		<b>2-4 PM</b>
16-Mar	<b>Spring Break</b>		
21-Mar	Carcinogenesis	Dr. O'Brien	9-10 AM
	Cancer Chemotherapy and Associated Toxicities	Dr. Lee	10-12 AM
28-Mar	Drugs for Transplantations/Immunosuppressants	Dr. Lee	10:30-12 PM

30-Mar	Heme Growth Factors	Dr. Kennedy	3-4 PM
4-Apr	Drugs for Bone	Dr. Werling	10-11 AM
5-Apr	Poisons and Antidotes	Drs. O'Brien/Soto	10-12 PM
6-Apr	<b>Exam 3 (3/21-4/4)</b>		2-4 PM
8-Apr	Drugs for Gout	Dr. Lee	9-10 AM
	Placebos, OTCs, Herbals & Dietary Supplements	Drs. Chiappinelli and Ceryak	10-12 PM
12-Apr	Pharmacogenomics	Dr. Lee	10-12 PM
14-Apr	Pharmacogenetics Workshop with PA Students	Drs. O'Brien, Callier, LeLacheur, Harralson	1-3 PM
20-Apr	Drug Ads	Faculty	2-4 PM
4-May	<b>Exam 4 (4/5-end)</b>		9-11 AM