

BIO 317 Syllabus

Principles of Medical Pharmacology

Instructor: Dr. Kerisha A. Bowen
kerishab@mail.med.upenn.edu
Wright Hall Room 217
Ext. 7499

Office Hours: TBA

Lecture: TBA

Materials

Needed: Pharmacology: Principles and Practice by Hacker, Bachmann, and Messer
Supplemental material will be made available on WebCT

*The textbook can be found in the university bookstore.

Prerequisites: Intro to Biology 1 & 2 (Bio 103 and 104)
Organic Chemistry 1 & 2 (Chem 203 and 204)

Course Description: Principles of Medical Pharmacology (Bio XXX) will cover the concepts of pharmacological sciences as they relate to biochemistry, cell biology, and drug therapy. In general, Pharmacology is the study of how drugs act in biological systems to affect their function. It is the study of how the body reacts to drugs. This field is usually referred to as the marriage between chemistry and biology. At the end of this course, you should be familiar with the principles behind drug action and development, dose-response relationships, pharmacodynamics, and pharmacokinetics.

Student Learning Outcomes: At the end of the semester, you should be able to

- Predict the relative ease of permeation of a weak acid (ex. Aspirin) or base (ex. Amphetamine) from a knowledge of its pKa, the pH of the medium, and the Henderson-Hasselbalch equation,
- List and discuss the common routes of administration and excretion of drugs,
- Name the types of antagonists used in pharmacology,
- Compute the half-life of a drug based on its clearance and volume of distribution,
- List the major phase I and phase II metabolic reactions,
- Describe the primary pharmacokinetic mechanisms that underlie drug interactions, and
- Describe how the pharmacodynamic characteristics of different drugs administered concomitantly may lead to additive, synergistic, or antagonistic effects.

Grading System: There will be a possible 1000 points to be earned from this course, which will be divided as follows:

450 points for 3 hourly exams taken in lecture (150 points each)
150 points for 15 weekly quizzes (10 points each)
200 points for a paper and presentation due at the end of the semester
200 points for the cumulative final exam

The standard grade scale will be used:

A = 100 – 93%	A- = 92 – 90%	B+ = 89 – 87%
B = 86 – 83%	B- = 82 – 80%	C+ = 79 – 87%
C = 76 – 73%	C- = 72 – 70%	D+ = 69 – 67%
D = 66 – 60%		

Disability Student Services: Students who have physical, psychological, or learning disabilities as defined by the Americans with Disabilities Act (ADA) are encouraged to register with the Disability Student Services in the Office of Student Services. Once registered, reasonable accommodations will be made to support you. The Disability Student Services is located in the Office of Student Services in 103 Lincoln Hall, and they are open Monday to Friday from 9AM to 5PM. They can also be reached at (484) 365-7214.

Lecture Course Schedule

Week	Start Date	Chapter(s)	Notes
1	1/6/10	Chapter 1: History of Pharmacology	
2	1/11/10	Chapter 2: Dosage Forms and Their Routes of Administration and Pick topic for paper and presentation	Last day to add/drop is Friday (1/15)
3	1/18/10	Chapter 3: Membranes and Drug Action	MLK day observed Monday (1/18)
4	1/25/10	Chapter 4: Ligand-Receptor Binding and Tissue Response	
5	2/1/10	Chapter 5: Hormesis and Pharmacology	Exam 1 on 2/8
6	2/8/10	Chapter 6: Signal Transduction and Second Messengers Chapter 7: Drug Distribution	
7	2/15/10	Chapter 8: Drug Metabolism	
8	2/22/10	Chapter 9: Drug Excretion	Midterm Exam on 3/1
9	3/1/10	Chapter 10: Pharmacokinetic Modeling	Midterm break Friday (3/5)
10	3/8/10	Chapter 12: Drug-Drug Interactions with an Emphasis on Drug Metabolism and Transport	
11	3/15/10	Chapter 13: Adverse Drug Reactions	Last day to withdraw is Monday (3/15)
12	3/22/10	Chapter 14: Risk Assessment	Exam 3 on 3/29/10
13	3/29/10	Chapter 15: Drug Resistance	Easter Recess Friday (4/2)
14	4/5/10	Presentations	Papers due 4/12
15	4/12/10	Review for Final	Last Week of

			Classes
16	4/20/10	Date of Final Exam TBA	

PLEASE NOTE THAT EXAMS ARE SCHEDULED ON MONDAYS FOR MAXIMUM STUDY TIME AND PREPARATION!!!

Paper and Presentation: At the end of the semester you will be responsible to turn in a 5-page double-spaced paper on a current medicine on the market. You will also be required to present a 15-minute PowerPoint presentation about the paper. You will be required to look at least 5 references for the paper. All references should be noted by the American Chemical Society format (more will be discussed in class). Both the paper and the presentation should include

- The route of administration,
- How the drug is absorbed, metabolized, and excreted in the body,
- And a brief history of the synthesis of the drug.

Academic Dishonesty: I am attaching the University's *Faculty Statement on Academic Integrity*. In this class, sanctions A and/or B will be imposed for the first cheating offense. The second time, sanction C, failure of the course, will be imposed.

Faculty Statement on Academic Integrity

Students are responsible for proper conduct and integrity in all of their scholastic work. They must follow a professor's instructions when completing tests, homework, and laboratory reports, and must ask for clarification if the instructions are not clear. In general, students should not give or receive aid when taking exams, or exceed the time limitations specified by the professor. In seeking the truth, in learning to think critically, and in preparing for a life of constructive service, honesty is imperative. Honesty in the classroom and in the preparation of papers is therefore expected of all students. Each student has the responsibility to submit work that is uniquely his or her own. All of this work must be done in accordance with established principles of academic integrity.

1. Acts of Academic Dishonesty (Cheating)

Specific violations of this responsibility include, but are not limited to, the following:

- Copying, offering and/or receiving unauthorized assistance or information in examinations, tests, quizzes; in the writing of reports, assigned papers, or special assignments.
- The fabrication or falsification of data, results, or sources for papers or reports.
- The use of unauthorized materials and/or persons during testing.
- The unauthorized possession of tests or examinations.
- The physical theft, duplication, unauthorized distribution, use or sale of tests, examinations, paper, or computer programs.
- Any action which destroys or alters the work of another student
- Tampering with grades, grade books or otherwise attempting to alter grades assigned by the instructor.
- The multiple submission of the same paper or report for assignments in more than one course without prior written permission of each instructor.

2. Plagiarism

If a student represents another person's ideas or scholarship as his/her own, that student is committing an act of plagiarism. The most common form of plagiarism among college students is the unintentional use of others' published ideas in their own work, and representing these ideas as their own neglecting to acknowledge the sources of such materials. It is each student's

responsibility to find out exactly what each of his/her professors expects in terms of acknowledging sources of information on papers, exams, and assignments.

3. Sanctions

A. Warning – a written notice that repetitions of misconduct will result in more severe disciplinary action. The warning becomes part of the student's file in the Office of the Registrar and, if there is no other example of misconduct, is removed at the time of graduation.

B. Failure for project (exam, paper, or experiment).

C. Failure of the course.

For serious and repeat offenses, the University reserves the right to suspend or expel.

Students failing a course because of an instance of academic dishonesty may not drop the course. The student may appeal a charge of academic dishonesty within 10 days of receiving notice of the same. The appeal will be heard by an Academic Hearing Board (AHB) consisting of chairs of each division of study (or their designees). Files on violations of this academic integrity code will be kept in the Office of the Registrar.