

PHA 5127
Basic Principles of Dose Optimization I

2 Credits

Website: <http://www.cop.ufl.edu/safezone/pat/pha5127/index.htm>

Fall 2009

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Goal: Understanding the importance of drug concentration/time relationships for optimal drug therapy.

Course Description:

An introduction to the study of the time course of drugs in the body with reference to their absorption, distribution metabolism, and elimination (ADME). Consideration is given to rate processes, the physiochemical influences on ADME, and formulation factors involved in drug delivery and availability.

Lectures:	Monday	Period 2 (8:30-9:20)	1404
	Tues.	Period 2 (8:30-9:20)	1404
	Thurs	Period 2 (8:30-9:20)	1404
	Friday	Period 2 (8:30-9:20)	1404

Office Hours: Friday 11:45am-12:35pm, or whenever instructor has time

Note: Course and instructor evaluations are requirements for the successful completion of this course. Course and instructor evaluations must be completed, just as exams, papers, and assignments must be completed for you to receive credit for this course. If you do not complete all required course and instructor evaluations by the last day of classes, you will receive an “I” or an incomplete grade for the semester because you have not completed all of the course requirements. See the College of Pharmacy Student/Faculty handbook and the UF undergraduate catalog in the Academic Regulations Section (Page 44) regarding policies and procedures for the conversion of “I” grades.

Exams: There will be 2 written exams and homework assignments (approximately 6, representing 10% of the final grade). The homework assignments will be given on the Case Studies Days. Exams will be multiple choice, true/false, short answer, essay and problems.

	Date	Time	% Total
1st Exam	Sept. 10	7:00 – 9:00pm	27.5
2nd Exam	Oct. 8	4:30-6:30 pm	27.5
3rd Exam	Oct. 20	7:00-9:00 pm	35
Homework/Case Studies	N/A		10
TOTAL			100

A key to the exam will be posted when exams are returned to students, and will remain posted for one week

Academic Honesty Guidelines:

Academic honesty guidelines are outlined in the University of Florida *Student Guide* and in the College of Pharmacy *Student/Faculty Handbook*. These guidelines will be strictly adhered.

All homework must be original work by the individual student. Students must be present in the lecture room on the day the Case Study is presented. They may be asked to present parts of the case study. If the student is selected for presentation and is not present, points will be deducted from the overall grade.

Required Reading: Health Center Bookstore: Joseph T. DiPiro, William J. Spruill, William Wade, Robert A. Blouin, Jane M. Pruemmer, *Concepts in Clinical Pharmacokinetics*, 4th Edition American Society of Hospital Pharmacists, Bethesda, 2005

Accommodations for students with disabilities:

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation”.

Recommended Reading:

Malcolm Rowland & Thomas N. Tozer, *Clinical Pharmacokinetics Concepts and Applications* 3rd ed. Lea & Febiger Philadelphia, 1995 (Required Text for Spring Class)

Michael E. Winter's
Basic Clinical Pharmacokinetics 3rd Ed.
Applied Therapeutics, Inc., Vancouver, WA

Applied Biopharmaceutics and Pharmacokinetics, 4th ed. McGraw Hill (On reserve)

Calculators: Scientific calculators

Examinations: Multiple choice, essay question and calculations. Questions concerning grading need to be asked not later than one week after grades were posted. The first exams will be given out. Final exams can be looked at, but will be kept.

Make-up Exams: Make-up exams will only be given, if important medical reasons exist (doctors excuse)

Grading: There will be no curving performed, unless the class average is significantly below a B grade.

Related Sites and Resources:

1. Biopharmaceutics & Pharmacokinetics, by Dr. Jamali, University of Alberta
<http://www.pharmacy.ualberta.ca/pharm415/>
2. Handout of PowerPoint presentations is available for purchase at the Health Center Bookstore
3. <http://pharmacyonline.creighton.edu/pha443/pdf/default.htm>
4. Excel Simulations Spreadsheets are available to use online or can be downloaded.
5. Veterinary pharmacology Veterinary pharmacology
<http://education.vetmed.vt.edu/Curriculum/VM8274/frame.html>
6. Multimedia resources pharmaceutical education <http://gaps.cpb.ouhsc.edu/>

To Download Programs

<http://www.cop.ufl.edu/courses/pha5127/simulatn.htm>

- I. 2 compartment body model
 - IV bolus
- II. 1 compartment body model
 - IV bolus
 - IV bolus single dose
 - IV bolus physiological model
 - IV bolus metabolism
 - Oral single dose with absorption
 - Infusion single dose
 - Multiple IV bolus injection
 - Multiple dosing with absorption
 - Multiple dose zero order infusion

College Web Site On-Line Use

To use these programs On-Line go to the College Web Site at:

<http://www.cop.ufl.edu/ned/hh.htm>

- Two Compartment Model
 - INJ2-S IV bolus
- One Compartment Model
 - IV bolus
 - IV-S single dose
 - IV-S-PHY physiological model
 - IV-MET metabolism
 - ORAL-S Oral single dose with absorption
 - INF-S Infusion single dose
 - MULINJ Multiple IV bolus injection
 - MULINF Multiple dose zero order infusion

It is the formal policy of this class that in order to fully and properly full the requirements of this course some use of and proficiency in the use of computers, including access to and use of the Internet (email and World Wide Web), will be required.

COURSE OBJECTIVES:

At the end of this course the student should be able to:

1. Understand the theoretical background of the pharmacokinetic behaviour of drugs.
2. Understand the influence of dosage forms, dosing regimens and dose on drug levels and to understand the relationship between drug concentration, effect and side effects.
3. Design optimized dosing regimens for patient care utilizing drug monitoring techniques and computer technology.
4. Apply the above principles for pharmacokinetic decision making and improvement of patient care.

STUDENT COMPETENCIES:


- A. Recognize and resolve preventable drug-related problems.
- B. Recognize and resolve ethical dilemmas in appropriate ways.
- C. Design, implement, monitor, evaluate, document, and modify or recommend modifications in pharmacotherapy to insure effective, safe and economical pharmaceutical care.
- D. Effectively communicate and educate both patients and other health care professionals in order to optimize pharmacotherapy and prevent future health problems.
- E. Implement rational pharmacotherapy based on a mastery of biomedical (e.g. physiology, anatomy and immunology), pharmaceutical (e.g. pharmacology, toxicology, both pharmaceutical and medicinal chemistry, and pharmacy administration) and clinical (e.g. epidemiology, pathophysiology, pharmacokinetics and therapeutics) sciences.
- F. Critically evaluate new advances in pharmacotherapy or systems of care and effectively utilize this new knowledge in patient care.


WebCT Information

How do I access Vista?

- Use Internet Explorer, Netscape or Mozilla browser (Safari also works for Mac users). Do not use AOL.
- Point your browser to <http://lss.at.ufl.edu>. Bookmark this page. This is where you will always access Vista. Do not bookmark any other page.
- Under the “WebCT Resources” heading note the **Student Demos** and the **Students: A Vista Introduction** links, where you can find tutorials and information on using Vista. Also note any announcements regarding Vista on the right side of our web site.
- Under the “WebCT Resources” heading, click on the **WebCT Browser Tuneup** link. Follow the step-by-step instructions to configure your browser to allow Vista to run properly.
- Click on the **Check Java** link to see if your computer has the correct version of Java. You will need Java 1.4.2 or higher from Sun Microsystems. Java from Microsoft will not work with Vista. If you need to download the correct version, click on the **Download Java** link.
- Click on the **VISTA** link, choose the **University of Florida**, and login using your GatorLink username and password. You will see a listing of all your Vista courses. Click on the link for the course you wish to enter.

If you are not able to login after following these instructions, contact the UF Computing HelpDesk at 352.392.HELP (4357), Mon – Thur (7:30 AM – 10:00 PM), Fri – 7:30 AM to 5:00 PM and Sun – 6:00 PM to 10:00 PM. You can also email the HelpDesk at helpdesk@ufl.edu, or come by the HelpDesk at the Computer Science and Engineering (CSE) building, Room 520, between the hours of 8:00 AM – 5:00 PM, Monday – Friday.

Navigating – Do not use your browser’s back and forward buttons. Navigate by clicking links or breadcrumbs. You can open a tree view of the site by clicking the  icon at the top left. Navigate using the tree view by clicking where you want to go.

Email – A green check will appear on the **Mail** icon when you have a new email. The email tool is internal to this course in Vista. You can’t email your friend or grandmother (unless they happen to be in this class). You can’t attach files larger than 250KB to a Vista email. You can forward your Vista email to another account by clicking the  icon. But you can’t reply from your other account; just read it and then go to Vista Mail to reply.

My Grades – A green check will appear on the **My Grades** icon when there are new grades posted. You will be able to see your grades as soon as they are released.

Discussions – Be aware that when you are participating in a discussion in Vista, everyone in the course can see all posts and who made the post. Be responsible for your words.