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PHAR 432.01: Biopharmaceutics and Pharmacokinetics

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Biopharmaceutics and Pharmacokinetics

Pharmacy 432
Fall 2000
3 credits

Todd Cochran SB242
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Class	T,Th	9:40-10:30 am	SB 117
Conference	Tue.	1:10, or 2:10, or 3:10	SB 336
Exams	Four Tuesdays	1:10-3:30 pm	SB 117

Course Description: Biopharmaceutics and Pharmacokinetics

Biopharmaceutics: Drug absorption, bioavailability, and drug product selection
Pharmacokinetics: The rates of drug absorption, distribution and elimination

Course Goals: The goals of this course are to provide the student with:

1. an understanding of the fundamental concepts of pharmacokinetics in humans
2. skills in the application of pharmacokinetics in dosage regimen design and therapeutic drug monitoring
3. knowledge about the application of biopharmaceutics in drug product use and selection

Required Materials:

1. Faculty Pac: Lecture notes on pharmacokinetics
2. Faculty Pac: Biopharmaceutics
3. A calculator with natural log (ln) and exponent (e) functions
4. Approximately 30 sheets of 2 or 3 cycle semilog graph paper
5. Approximately 10 sheets of linear graph paper
6. Straight edge

Course Format: 28 classes, 10 conferences, 4 exams, final exam

Course Outline:

	<u>Class</u> T,Th	<u>Conference</u> Tuesday	<u>Fac Pac</u> Pages	<u>Study</u> Problems
Pharmacokinetics				
Review of zero and first order kinetics	Sep 5	Sep 5	1-13	1-6
One Compartment Model	Sep 7	Sep 12	14-19, 77	
Intravenous Drug Administration	Sep 13#	Sep 19	20-24, 78	
Loading Dose, Clearance	Sep 14		25-26, 79-81	
Dosage Regimen Adjustment	Sep 19		27-28, 82-84	
Exam 1 Tues Sep 26 1:10-3:30 pm				1-18
Cytochrome P450 enzymes	Sept 21			
Extravascular Administration	Sep 26,28	Oct 3	29-35, 85	
Multicompartment Models	Oct 3,5		36-40, 86-89	
Method of Residuals	Oct 10	Oct 10	90-95	
Exam 2 Tues Oct 17 1:10-3:30 pm				19-28
Repetitive Drug Administration; IV Dosing	Oct 12,17,19	Oct 24	41-50, 99-98	
Repetitive Oral Dosing, Loading Dose	Oct 24		51-55, 99-100	
Repetitive IV Infusion	Oct 26	Oct 31	56-59, 101-106	
Dosage Regimen Design & Adjustment	Oct 31		60-64	
Exam 3 Tues Nov 14 1:10-3:30 pm				29-57
Creatinine Clearance	Nov 2		65	
Dosage Adjustment in Renal Disease	Nov 7*	Nov 7*	66-70, 107-109	
Nonlinear Pharmacokinetics	Nov 9	Nov 28	71-72, 110-112	
Clearance Concepts: Physiologic Models	Nov 14		114-118	
Bayesian Methods	Nov 16			
Exam 4 Tues Dec 5 1:10-3:30 pm			113, 119-122	58-72

Class will meet Wed Sept 13 @ 9:10 in CP204. Phar 451 will meet Tue Sept 12 @ 9:40 in SB117

* Class and Conference will meet Tuesday Nov 7 (Election Day) in lieu of Tuesday Nov 21.

Biopharmaceutics and Clinical Pharmacokinetics

	Class (T,Th)	Conf. (T)
Factors Affecting Drug Absorption	Nov 28, 30	
p-Glycoprotein	Dec 5	
Pharmacokinetic Basis of Drug Interactions	Dec 7	
Bioavailability and Bioequivalence	Dec 12	Dec 12
Drug Product Selection; Course Evaluation	Dec 14	

Final Exam Tuesday Dec 19, 8:00-10:00 am

Grading:

Four mid-semester exams @ 50 points	200 points	80%
Final exam (not cumulative)	50 points	20%
Total:	250 points	

Bonus points: The four mid-semester exams will have 5 bonus points on each exam.
Bonus point questions will be taken from a literature article distributed before each exam.

Approximate grading scale: A = 90%, B = 80%, C = 70%, D = 65%

Course Policies:

Students are expected to take all exams at the scheduled time. If you cannot take an exam at the scheduled time, you must contact Todd Cochran or leave a message with a pharmacy secretary (Erika Claxton @ 4621 or Beverly Owens @ 4765) no later than noon of the day of the exam. Exams normally must be made up within three class days.

If you have questions regarding the grading of your exam, please make an appointment with Todd Cochran to review your exam. Appointments must be scheduled **within 10 days** following the return of your exam. After that time, adjustment of grades will not be made. You are encouraged to review the posted exam key before your appointment.

OnLine Materials: Course handouts that are Word documents will be placed on the School's server at: Network Neighborhood, Skaggs-03, PharmSci, P2, 432
These files can be accessed and printed in the School's Computer Lab.

Help Sessions: Mon; Sept 25, Oct 16, Nov 13, Dec 4; 3 or 4 pm

Office Hours: M,W,F 1-2 pm; Other hours by appointment.