Fall 9-1-2000

PHAR 432.01: Biopharmaceutics and Pharmacokinetics

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Biopharmaceutics and Pharmacokinetics

Pharmacy 432
Fall 2000
3 credits

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:

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

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

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

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

Factors Affecting Drug Absorption
- p-Glycoprotein
- Pharmacokinetic Basis of Drug Interactions
- Bioavailability and Bioequivalence
- Drug Product Selection; Course Evaluation

Class (T, Th) Conf. (T)
- Nov 28, 30
- Dec 5
- Dec 7
- Dec 12
- 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.