

Department	Pharmacy
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<b>Course Name</b>	<b>Biopharmaceutics &amp; Pharmacokinetics Lab</b>	<b>Course No.</b>	<b>201422</b>
Prerequisite	Pharmaceutics Lab	Credit Hours	201329
Number & date of course plan approval		Brief Description	See form QF02/0409

<b>Course Objectives</b>	<ol style="list-style-type: none"> <li>1 Initiate drug dosing regimens individualized to specific patient demographics and organ function.</li> <li>2 Interpret drug serum concentration data.</li> <li>3 Calculate individual pharmacokinetic parameters.</li> <li>4 Calculate appropriate dosing regimens utilizing derived pharmacokinetic parameters.</li> <li>5 Demonstrate an understanding of the appropriate application and limitations of select pharmacokinetic models.</li> <li>6 Prepare student to recognize sources of individual pharmacokinetic variability due to physiological and disease factors</li> <li>7 Prepare student to understand the application and role of pharmacokinetic information generated for selected drugs and drug classes.</li> <li>8 Utilize pharmacokinetic data generated from individual patients to develop appropriate therapeutic dosing regimens.</li> </ol>
<b>Intended Learning Outcomes</b>	<p>At the end of this course, student will be able to:</p> <ol style="list-style-type: none"> <li>1. Understand the concepts of rate and order of processes</li> <li>2. Handle the semi-log and standard graph papers, and distinguish the resulted curves generated by ordered processes, and ability to calculate slopes and intercepts</li> <li>3. Calculate different parameters such as clearance, volume of distribution, area under the curve.</li> <li>4. Evaluate doses and dosage adjustment according to the therapeutic window of the drug</li> <li>5. Understand bioavailability and bioequivalence</li> </ol>
<b>Course Topics</b>	<ol style="list-style-type: none"> <li>1.rates and orders</li> <li>2. pharmacokinetic compartment models</li> <li>3.kinetics of intravascular route</li> <li>4. kinetics of extravascular route</li> <li>5.organ clearance</li> <li>6. bioavailability</li> <li>7. nonlinear kinetics</li> </ol>

<b>Text Books</b>	Accompanying laboratory manual.		
<b>References</b>	Applied biopharmaceutics and pharmacokinetics, shargel, 5th edition		
<b>Grade Determination</b>	1 <sup>st</sup> Exam = 25% 2 <sup>nd</sup> Exam = 25% Final Exam = 50%	Practical Course Grade Determination	Course Work = 50% (Reports, Term Papers, Quizes) Final Exam = 50%

### Course Outline

Week	Hours	Subjects	Chapters in Textbook	Notes
1	1	General Introduction: Mathematical Fundamentals	Experiment 1	
2	1	Revision of rate and order concepts, Use of graph papers.	Experiment 2	
3	1	One compartment IV bolus-single dose	Experiment 3	
4	1	Calculation of K from urinary excretion data	Experiment 4	
5	1	<b>Tutorial</b>	Experiment 5	
6	1	Two compartment IV bolus-single dose	Experiment 6	
7	1	One compartment IV infusion-single dose	Experiment 7	
8	1	One compartment oral dosage form-single dose	Experiment 8	
9	1	Multiple dosage regimen: repetitive IV bolus	Experiment 9	
10	1	Renal and hepatic clearance + Bioavailability	Experiment 10	

Approved by Dept. Chair		Date of Approval	
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**Extra Information:** (Updated every semester and filled by course instructor)

<b>Course Instructor</b>	MSc. Ameerah Hassan Ibrahim
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<b>Office hours</b>	Sun (9.30-11) Tues (9.30-11) Wed (11-2) Thurs (9.30-11)