Philadelphia University	PHILADELPHIA UNIVERSITY THE WAY TO THE FUTURE	**Approved Date:**
Faculty:Pharmacy		**Issue:**
Department:Clinical sciences		**Credit Hours:1**
Academic Year:2021-2022	**Course Syllabus**	**Bachler:**

Course Information

Course No.	Course Title	Prerequisite
0520517	**Applied Biopharmaceutics and Pharmacokinetiucs Lab**	**Clinical Pharmacokinetics (0520516)**

Course Type	Class Time	Room No.
☐ Univirsity Requirement ☐ Fuclty Requirement ☐ Major Requirement ☐ Elective ■ Compulsory	**Sec 1: Tue 14:15-16:00** **Sec 3: Mon 8:00-9:45**	**601** **614**

Instructure Information

Name	Office No.	Phone No.	Office Hours	E-mail
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Course Delivery Method

☐ Blended	☐ Online	■ Physical
Learning Model		
Percentage	**Synchronous**	**Asynchronous**	**Physical**
		100%

Course Description

This course is devoted to the exploration and examination of the physical and physicochemical behavior of drugs, dosage forms, and drug delivery systems in physiological milieu and their implications for pharmaceutical care. Drug absorption processes, bioavailability, and bioequivalence will be highlighted. Pharmacokinetic and Pharmacodynamic concepts, including absorption kinetics, volume of distribution, and compartmental models, will be introduced to the student.

Course Learning Outcomes

Number	Outcome	Corresponding Program Outcomes	Corrosponding Competencies
Knowledge			
K1	Understand basic principles of drug kinetics (linear and nonlinear) and the compartmental modeling.	**Kp1**	**C1**
K2	Understand the impact of physio-chemical properties of drug molecules in relation to drug absorption, distribution, metabolism, and excretion (pharmacokinetic processes).	**Kp1, Kp2**	**C1, C2**
K3	Understand principles of bioavailability/bioequivalence.	**Kp1, Kp2, Kp3**	**C1, C2, C3**
K4	Understand pharmacokinetics and biopharmaceutics after I.V bolus, I.V infusion, and oral administration of drugs.	**Kp1, Kp2, Kp3**	**C1, C2, C3**
K5	Understand disease and dietary influences on absorption, distribution, metabolism, and excretion.	**Kp3, Kp4**	**C3,C4**
Skills			
S1	Handle the semi-log and standard graph papers, and distinguish the resulted curves generated by ordered processes, and ability to calculate slopes and intercepts to extract pharmacokinetic processes according to the model under question.	**Sp1, Sp2**	**C7, C8**
S2	Calculate and interpret pharmacokinetic parameters.	**Sp1, Sp2**	**C7, C8**
S3	Design and adjust drug dosage regimens.	**Sp1, Sp2**	**C7, C8**

Learning Resources

Course Textbook	Applied Biopharmaceutics and Pharmacokinetics, Leon Shargel, Andrew B.C. Yu MacGraw-Hill Education, New York, 7th edition 2016 ISBN: 978-981-4670-24 -1
Supporting References	• Biopharmaceutics and Pharmacokinetics PL Madan Jaypee brothers medical publishers, 2nd edition 2014 ISBN: 978-93-5090-939-3 • Specialized software as WinNonlin® standard and PowerPoint presentations.
Supporting Websites	• http://www.philadelphia.edu.jo/pharmacy/resources.html • PHARMACOKINETICS – CALCULATORS, TOOLS, ETC. HTTPS://GLOBALRPH.COM/PHARMACOKINETICS/ • COMPUTERISED BAYESIAN DOSE CALCULATION
Teaching Environment	■ **Classroom** ☐ **laboratory** ☐ **Learning Platform** ☐ **Other**

Meetings and Subjects Time Table

Week	Topic	Learning Method*	Task	Learning Material
1	- Vision and Mession of faculty of pharmacy - Course syllabus - Introduction	lecture		Lab manual
2	Introduction to Biopharmaceutics and pharmacokinetics	lecture		Lab manual
3	-Rates and order of reactions (Zero-order kinetics) & (First order kinetics). -how to use semi-log paper.	lecture problem solving based learning	Report sheet Quiz	Lab manual
4	One- compartment open model (Iv bolus)	lecture problem solving based learning	Report sheet Quiz	Lab manual
5	Two- compartment open model (Iv bolus)	lecture problem solving based learning	Report sheet Quiz	Lab manual
6	Multiple – dosage regimens (Iv bolus)	lecture problem solving based learning	Report sheet Quiz	Lab manual
7	One- compartment open model (Iv infusion)	lecture problem solving based learning	Report sheet	Lab manual
8	Urinary excretion data	lecture problem solving based learning	Report sheet	Lab m anual
9	Pharmacokinetics of oral absorption (part 1)	lecture problem solving based learning	Report sheet	Lab manual
10	Pharmacokinetics of oral absorption (part 2)	lecture		Lab manual
11	Practical Exam			
12	Final Exam			

*Includes: lecture, flipped Class, project based learning, problem solving based learning, collaboration learning.

Course Contributing to Learner Skill Development

Using Technology
• Using powerpoint or any relevant program for preparing presentations • Using Excel to calculate different pharmacokinetic parameters. • Using PK-program to illustrate the different pharmacokinetic concepts.
Communication Skills
• Interaction in class while solving case-study • Critical thinking abilities • Report writing
Application of Concept Learnt
The practical laboratory allows students to be able to apply most of the acquired knowledge from the theoretical lectures to solve problems in accordance to disease-state and individualization of doses.

Assessment Methods and Grade Distribution

Assessment Methods	Grade	Assessment Time (Week No.)	Course Outcomes to be Assessed
Quizzes	**% 20**	**Continuous**	**K1, K2, K3, K5 S2**
Reports	**% 30**	**Continuous**	**K1, K2, K3, K4, K5 S1, S2, S3**
practical exam	**% 10**	**11th week**	**K4, S1**
Final Exam	**% 40**	**12th week**	**K1, K2, K3, K4, K5 S1, S2, S3**
Total	**%100**		

* Include: quizzes, in-class and out of class assignment, presentations, reports, videotaped assignment, group or individual project.

Alignment of Course Outcomes with Learning and Assessment Methods

Number	Learning Outcomes	Learning Method*	Assessment Method**	Competencies
Knowledge				
K1	Understand basic principles of drug kinetics (linear and nonlinear) and the compartmental modeling.	lecture problem solving based learning	Subjective Quiz Report	C1
K2	Understand the impact of physio-chemical properties of drug molecules in relation to drug absorption, distribution, metabolism, and excretion (pharmacokinetic processes).	lecture	Subjective Quiz Report	C1, C2
K3	Understand principles of bioavailability/bioequivalence.	lecture problem solving based learning	Subjective quiz Case study	C1, C2, C3
K4	Understand pharmacokinetics and biopharmaceutics after I.V bolus, I.V infusion, and oral administration of drugs.	lecture problem solving based learning	Subjective Quiz Case study Report	C1, C2, C3
K5	Understand disease and dietary influences on absorption, distribution, metabolism, and excretion.	lecture problem solving based learning	Subjective Quiz Case study Report	C3,C4
Skills				
S1	Handle the semi-log and standard graph papers, and distinguish the resulted curves generated by ordered processes, and ability to calculate slopes and intercepts to extract pharmacokinetic processes according to the model under question.	lecture problem solving based learning	Subjective Quiz Report	C7, C8
S2	Calculate and interpret pharmacokinetic parameters.	lecture problem solving based learning	Subjective Quiz Case study Report	C7, C8
S3	Design and adjust drug dosage regimens.	lecture problem solving based learning	Subjective Quiz Case study Report	C7, C8

*Include: lecture, flipped class, project based learning, problem solving based learning, collaboration learning.

** Include: quizzes, in-class and out of class assignments, presentations, reports, videotaped assignments, group or individual projects.

Course Polices

Policy	Policy Requirements
Passing Grade	The minimum pass for the course is (50%) and the minimum final mark is (35%).
Missing Exams	• Anyone absent from a declared semester exam without a sick or compulsive excuse accepted by the dean of the college that proposes the course, a zero mark shall be placed on that exam and calculated in his final mark. • Anyone absent from a declared semester exam with a sick or compulsive excuse accepted by the dean of the college that proposes the course must submit proof of his excuse within a week from the date of the excuse's disappearance, and in this case, the subject teacher must hold a compensation exam for the student. • Anyone absent from a final exam with a sick excuse or a compulsive excuse accepted by the dean of the college that proposes the material must submit proof of his excuse within three days from the date of holding that exam.
Attendance	The student is not allowed to be absent more than (15%) of the total hours prescribed for the course, which equates to six lecture days (n t) and seven lectures (days). If the student misses more than (15%) of the total hours prescribed for the course without a satisfactory or compulsive excuse accepted by the dean of the faculty, he is prohibited from taking the final exam and his result in that subject is considered (zero), but if the absence is due to illness or a compulsive excuse accepted by the dean of the college that The article is introduced, it is considered withdrawn from that article, and the provisions of withdrawal shall apply to it.
Academic Integrity	Philadelphia University pays special attention to the issue of academic integrity, and the penalties stipulated in the university's instructions are applied to those who are proven to have committed an act that violates academic integrity, such as cheating, plagiarism (academic theft), collusion, intellectual property rights.

Program Learning Outcomes to be Assessed in this Course

Number	Learning Outcome	Course Title	Assessment Method	Targeted Performance level

Description of Program learning Outcomes Assessment Method

Number	Detailed Description of Assessment

Assessment Rubric of the Program Learning Outcomes
