

جامعة كل العرب

**Faculty :** Pharmacy  
**Department:** Clinical Pharmacy and Therapeutics  
**Academic Year:**2020/2021  
**Semester:** First

( Course Syllabus )

Subject Name	Credit Hours	Course No.	Prerequisite	Concurrent course
Pharmacokinetics Lab	1	906413		906411 Pharmacokinetics

Coordinator Name	Lecturer/s	Room No.	E-mail	Course website	Office Hours
MS.c Rajaa Dagash	MS.c Rajaa Dagash	4210	<a href="mailto:r_dagash@asu.edu.jo">r_dagash@asu.edu.jo</a>		

**Course Description:**

This course is the practical part for the Pharmacokinetics course. It is intended to help students developing mathematical skills and practice on using mathematical models or graphs in determining pharmacokinetic parameters after oral administration, IV bolus dose, IV infusion, and multiple dosing. Students also learn how to apply these mathematical models in clinical cases

**Course objectives:**

pon successful completion of the course:

1. The students will be able to estimate Pharmacokinetic parameters for zero order kinetic, first order kinetic, single dose bolus and intravenous and oral administration of dosage forms, and multiple oral and intravenous dosing.
2. The students will be able to calculate the pharmacokinetics parameters for clinical cases.
3. The students will be able to design dosage regimens and evaluate pharmacologic response and determine the frequency of administration.
4. The students will be able to deal with pharmacokinetics calculations that are applied in clinical setting in the hospital.

**Intended Learning Outcomes:**

Following the successful completion of this course, the student should be able to:

**A. Knowledge and understanding:**

- A1. Describe the differences between zero-order and first-order kinetic processes



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A2.Understand the physiological determinants of the primary pharmacokinetic parameters of clearance, volume of distribution and half-life

### **B. Subject specific skills:**

B1.Calculate primary and secondary pharmacokinetic parameters from plasma concentration-time plot and/or urinary data

B2.Plot plasma as well as urine data to obtain drug-plasma and drug-urine profiles

### **C. Cognitive and Intellectual skills:**

C1The cumulative understanding of all the aforementioned fundamental pharmacokinetic principles and quantitative relationships will be used to design dosage regimens, evaluate pharmacologic response, select a particular route of drug administration, determine the frequency of administration, identify patient factors which require a modification of normal drug dosing regimen

C2. Manipulate mathematical equations to simplify pharmacokinetic models and find out the micro and macro pharmacokinetic constants

### **D. Transferable Skills:**

### **Teaching and Learning Methods:**

**Development of ILOs is promoted through the following teaching and learning methods:**

ILOs	Learning Methods	Evaluation Methods
A1 & A2	Lab demonstration (to explain the theoretical knowledge for each topic)	Exams, class discussions and reports
B1 & B2	Solving mathematical problem with the student	Exams, class discussions and reports
C1 & C2	Case discussion (to apply the knowledge to solve patient cases) And home works	Exams, class discussions and reports

### **Course Content:**



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Week	Date	Lecture number	Topic's Details	Exams/ /quizes/ holidays	Main Reference (chapter)	ILOs achieved
1	18/10/2020	1	First week in Semester (No lab)		-	
2	25/10/2020	2	Introduction to Pharmacokinetics and Mathematical Concepts(Part1)		Ref1: Ch. 2	A1, A2
3	1/11/2020	3	Introduction to Pharmacokinetics and Mathematical Concepts(Part2)		Ref1: Ch. 2	A1, A2
4	8/11/2020	4	Determination of AUC Using the Trapezoidal Rule		Ref1: Ch. 4	A2, B1
5	15/11/2020	5	Plasma Data after Single Intravenous Bolus Dose in One Compartment Open Model		Ref1: Ch. 3	A2, B1, C1
6	22/11/2020	6	Pharmacokinetics Parameters from Urinary Data after Administration of a Single Intravenous Bolus Dose in One Compartment Open Model		Ref1: Ch. 3	A2, B1, B2, C1
7	29/11/2020	7	Pharmacokinetics Parameters after Single Intravenous Infusion in One Compartment Model(Part1)		Ref1: Ch. 10	A2, B1, C1
8	6/12/2020	8	Pharmacokinetics Parameters after Single		Ref1: Ch. 10	A2, B1, C1

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			Intravenous Infusion in One Compartment Model(Part2)			
9	13/12/2020	9	Pharmacokinetics Parameters after a Single Oral Dose in One Compartment Open Model (plasma data)		Ref1: Ch. 6	A2, B1, C1
10	20/12/2020	10	Pharmacokinetics Parameters after Multiple Intravenous Doses in One Compartment Model (plasma data)		Ref1: Ch. 11	A2, B1, C1
11	27/12/2020	11	Pharmacokinetics Parameters after Multiple Oral Doses in One Compartment Model (plasma data)		Ref1: Ch. 12	A2, B1, C1
12	3/1/2021	12	Pharmacokinetics Parameters after a Single i.v. Bolus Dose in Two Compartment Model		Ref1: Ch. 13	A2, B1, C2
13	10/1/2021	13	Revision			

### Grade Distribution:

Your course grade will be determined by the following:

Assessment Method	% of Final Grade	Due Date
Reports and behavior	10	To be announced
Quizzes and Homeworks	10	To be announced
Midterm	30	To be announced
Final Exam	50	To be announced

\* Provisional dates are scheduled in the course schedule. Each instructor will announce the exact date for the quizzes of each section at the beginning of the semester.

*Distribution of examination material (may vary depending on material included):*

Example:

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### Course Policies:

#### A- Attendance policies:

Attendance: Mandatory.

First warning – with 1 absences

Last warning – with 2 absences

Failing in the subject – with 3 absences

#### B- Absences from exams and handing in assignments on time:

Will result in zero achievement unless health report or other significant excuse is documented.

#### C- Health and safety procedures: NA

#### D- Honesty policy regarding cheating, plagiarism, misbehavior:

The participation, the commitment of cheating will lead to applying all following penalties together

1. Failing the subject he/she cheated at
2. Failing the other subjects taken in the same course
3. Not allowed to register for the next semester. The summer semester is not considered as a semester

#### E- Grading policy:

Exams and Quizzes.

Reports and behavior 10points

Quizzes 10 points

Midterm 30 points

Final Exam: 50 points

Total: 100 points

#### F- Available university services that support achievement in the course:

Classrooms, internet classes, ASU online web site (messages, assignment, and notes)

### 24. Required equipment:

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#### Make-up Exam Policy:

*Make-up exams will be offered for valid reasons. They may be different from regular exams, both in content and format.*

#### Textbooks information:

#### Main Reference:

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1. Manual of Pharmacokinetics/ Applied Science Private University 2020.

### Other References:

1. Basic Pharmacokinetics. Sunil S. Jambhekar and Philip J. Breen. Second edition, 2012.
2. Applied Biopharmaceutics and Pharmacokinetics. By Leon Shargel, Susanna Wu-Pong, and Andrew Yu, 7<sup>th</sup> edition, 2016

### Additional information:

No side talks during lecture

No mobile phones during lecture

Entering the lecture theatre after the instructor is not permitted.

Homework should be done by students independently and will be asked at the exams

#### Course Material and Announcements

Students need to use the e-learning page at the ASU website in order to get all lecture handouts and guidelines which will be uploaded there.

In addition, course related announcements and exam results will be posted on the ASU online AND/OR course website and is the responsibility of each student to check the sites regularly.

Name of Course Coordinator: MS.cRajaaDaghashSignature: *RajaaDaghash*Date: 12/10/2020

د. ريم ابوتايه

Head of curriculum committee: Reem Abutayeh Signature:

Head of Department: Dr. May Abu TahaSignature:

*May Abu Taha*

Dean: \_\_\_\_\_ Signature: \_\_\_\_\_

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