



The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

1	Course title	Case studies in pharmacokinetics
2	Course number	1203476
3	Credit hours (theory, practical)	1 (practical)
	Contact hours (theory, practical)	3 (practical)
4	Prerequisites/corequisites	1203475
5	Program title	BSc in Pharmacy and PharmD
6	Program code	
7	Awarding institution	The University of Jordan
8	Faculty	Pharmacy
9	Department	Biopharmaceutics & Clinical Pharmacy
10	Level of course	4 th year undergraduate
11	Year of study and semester (s)	Fall 2015-16
12	Final Qualification	-
13	Other department (s) involved in teaching the course	-
14	Language of Instruction	English
15	Date of production/revision	17 February 2016

16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.

Dr Mohammad Saleh, PhD.

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Office hours: Sunday: 1:00-2:00 PM and Monday: 12:00-1:00 PM

17. Other instructors:

Prof. Mutasim Al-Ghazawi, PhD.

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Dr Mariam AbdEljalil

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18. Course Description:

This practical course in addition to the co-requisite course (1203476) provides students with a basic intuitive understanding of the pharmacokinetic principles, terminology, models, equations and factors affecting drug absorption, distribution, metabolism and excretion and its importance in drug therapeutic or toxic effects. Emphasis will be placed upon the prediction of plasma levels of drugs under varying conditions applying different pharmacokinetic parameters. Handling pharmacokinetic parameters of drugs in the body and solving problems

19. Course aims and outcomes:**A- Aims:**

- 1) Mathematical background for modeling of the concentration time relationships for the different routes of administration.
- 2) Designing dosing regimens by relating plasma concentration of drugs to their pharmacological and toxicological action,
- 3) Individualization of therapy for patients.
- 4) Designing therapeutic drug monitoring plans for drugs with narrow therapeutic index or high toxicity.

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to ...**A) Knowledge and understanding**

- A1) Understanding mathematics of the time course of Absorption, Distribution, Metabolism, and Excretion (ADME) of drugs in the body.
- A2) Individualization of therapy and therapeutic drug monitoring.

B) Intellectual skills (cognitive and analytical)

- B1) Utilization of mathematics of the time course of Absorption, Distribution, Metabolism, and Excretion (ADME) of drugs in the body for dosage optimization.
- B2) Developing dosing regimens for the individualization of therapy for the patient

C) Subject specific skills

- C1) Fitting concentration time profiles and estimating pharmacokinetic parameters.
- C2) Adjusting dosing regimens in case of renal and hepatic dysfunction.

D) Transferable Skills

- D1) Communicating dosage adjustment with physicians and patients.
- D2) Suggesting therapeutic monitoring plans for clinicians.

Program Competencies Achieved:

- 1.4 Identify different routes of administration of medicines
- 1.13 Advise patients on proper storage, usage and adherence of dispensed medicines
- 2.5 Identify basic principles of drug pharmacokinetics and recognize disease conditions and other factors that interfere with safety and efficacy of medicines
- 2.9 Advise patients and other health professionals on proper usage of medicines including their strength, frequency, dosage form and route of administration
- 3.6 Demonstrate the ability to perform pharmaceutical calculations
- 5.1 Communicate effectively with patients and other healthcare professionals
- 5.7 Build positive relationships with patients and other healthcare professionals
- 7.5 Utilize information technology tools to enhance working experience

Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
1. Introduction	2	Dr Mohammad, Dr Mutasim, Dr Rana, Dr Mariam	A1, B1, C1	Exams, Quizzes, and reports	Lab manual and Pharmacokinetics class material
2. The one-compartment open model with an intravenous bolus dose: calculating pharmacokinetic parameters from plasma data	3-4	Dr Mohammad, Dr Mutasim, Dr Rana, Dr Mariam	A1, B1, C1	Exams, Quizzes, and reports	Lab manual and Pharmacokinetics class material
3. The one-compartment open model with an intravenous bolus dose: calculating pharmacokinetic parameters from urinary data	5	Dr Mohammad, Dr Mutasim, Dr Rana, Dr Mariam	A1, B1, C1	Exams, Quizzes, and reports	Lab manual and Pharmacokinetics class material
4. The one-compartment open model with an intravenous infusion: calculating pharmacokinetic parameters from continuous infusion, infusion with a bolus dose, post infusion data	6	Dr Mohammad, Dr Mutasim, Dr Rana, Dr Mariam	A1, B1, C1	Exams, Quizzes, and reports	Lab manual and Pharmacokinetics class material
5. The one-compartment open model with absorption and elimination: calculating pharmacokinetic parameters from plasma data	7	Dr Mohammad, Dr Mutasim, Dr Rana, Dr Mariam	A1, B1, C1	Exams, Quizzes, and reports	Lab manual and Pharmacokinetics class material
Midterm exam	8			Exams, Quizzes, and reports	Lab manual and Pharmacokinetics class material
6. The one-compartment open model with absorption and elimination: calculating pharmacokinetic parameters from plasma data	9	Dr Mohammad, Dr Mutasim, Dr Rana, Dr Mariam	A1, B1, C1	Exams, Quizzes, and reports	Lab manual and Pharmacokinetics class material
7. The one-compartment open model with multiple dosing kinetics: multiple dosing IV	10	Dr Mohammad, Dr Mutasim, Dr Rana, Dr Mariam	A1, B1, C1	Exams, Quizzes, and reports	Lab manual and Pharmacokinetics class material
8. The one-compartment open model with multiple dosing kinetics: multiple dosing oral	11	Dr Mohammad, Dr Mutasim, Dr Rana, Dr Mariam	A1, B1, C1	Exams, Quizzes, and reports	Lab manual and Pharmacokinetics class material
9. Designing dosing regimens	12	Dr Mohammad, Dr Mutasim, Dr Rana, Dr Mariam	A2, B2, C2	Exams, Quizzes, and reports	Lab manual and Pharmacokinetics class material
10. The two-compartment open model with intravenous administration.	13	Dr Mohammad, Dr Mutasim, Dr Rana, Dr Mariam	A1, B1, C1	Exams, Quizzes, and reports	Lab manual and Pharmacokinetics class material
Final exam	14				

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following <u>teaching and learning methods</u>:		
ILO/s	Learning Methods	Evaluation Methods
A, B, C, and D	Lectures	Exams, Quizzes, and reports
A, B, C, and D	Case discussion	Exams, Quizzes, and reports

Learning skills:
Critical thinking
Problem-solving skills
Scientific reasoning
Communication skills

22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following <u>assessment methods and requirements</u>:
Exams Quizzes Reports

23. Course Policies:

<p>A- Attendance policies:</p> <p>Attendance: Mandatory. First warning – with 1 absences Last warning – with 2 absences Failing in the subject – with 3 absences</p> <p>B- Absences from exams and handing in assignments on time:</p> <p>Will result in zero achievement unless health report or other significant excuse is documented.</p> <p>C- Health and safety procedures:</p> <p>NA</p> <p>D- Honesty policy regarding cheating, plagiarism, misbehavior:</p> <p>The participation, the commitment of cheating will lead to applying all following penalties together</p> <ol style="list-style-type: none"> 1) Failing the subject he/she cheated at 2) Failing the other subjects taken in the same course
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3) Not allowed to register for the next semester. The summer semester is not considered as a semester

E- Grading policy:

Exams and Quizzes.

Mid Exam:	30 points
Quizzes, evaluation, and reports	30 points
Final Exam:	40 points
Total	100 points

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

Classrooms

24. Required equipment:

Datashow and internet connection

25. References:

Applied biopharmaceutics and pharmacokinetics, Shargel and Yu, 7th edition, 2016

26. Additional information:

Name of Course Coordinator: Mohammad Saleh -Signature: ----- Date:Feb, 17, 2016

Head of curriculum committee/Department: ----- Signature: -----

Head of Department: Nailya Bulatova Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----

Copy to:

Head of Department
Assistant Dean for Quality Assurance
Course File