



**The University of Jordan**

**Accreditation & Quality Assurance Center**

**COURSE Syllabus**

1	Course title	Clinical Pharmacokinetics clerkship
2	Course number	1203607
3	Credit hours (theory, practical)	2 (practical)
	Contact hours (theory, practical)	2 (practical)
4	Prerequisites/corequisites	
5	Program title	PharmD
6	Program code	
7	Awarding institution	The University of Jordan
8	Faculty	Pharmacy
9	Department	Biopharmaceutics & Clinical Pharmacy
10	Level of course	undergraduate
11	Year of study and semester (s)	First semester and second semester of the 6th year
12	Final Qualification	PharmD
13	Other department (s) involved in teaching the course	None
14	Language of Instruction	English
15	Date of production/revision	

**16. Course Coordinator:**

Dr. Sameh Al-Zubiedi  
 Faculty of Pharmacy / Dept of Biopharmaceutics and Clinical Pharmacy  
 Office No.: 203 / Phone No.: 5355000 ext. 23368 / Email: s.alzubiedi@ju.edu.jo  
 Office hours: to be arranged

**17. Other instructors:**

*Dr. Mohammed Saleh*  
*Dr. Maysa Suyagh*  
*Dr. Mariam Abdel Jaliel*

**18. Course Description:**

*As stated in the approved study plan.*

The clerkship in clinical pharmacokinetics is intended to allow PharmD students an opportunity to acquire the practical experience in the application of clinical pharmacokinetic principles to various drug therapies with emphasis on the selection and design of antimicrobial therapies. Students will learn how to apply these principles by gathering pertinent clinical information, development of pharmaceutical care and monitoring plans, thorough literature evaluation, and case discussions.

**19. Course aims and outcomes:**

1 This course aims to:

- Allow students to apply knowledge of pharmacokinetic principles to design optimal drug dosage regimens for individual patients taking into account their clinical and demographic characteristics.
- Establish a standardized pharmacokinetic monitoring approach for patients receiving drugs that are routinely monitored utilizing serum drug concentrations.

**Intended Learning Outcomes:**

**A- Knowledge and Understanding:**

Student is expected to

- A1. Discuss and understand the basic pharmacokinetic principles and key pharmacokinetic parameters.
- A2. Discuss and understand various aspects of a drug's pharmacokinetic properties and factors affecting them.
- A3. Discuss the effect of different disease states on the pharmacokinetics and pharmacodynamics of drugs
- A4. Understand the theoretical basis of therapeutic drug monitoring.

**B- Intellectual, Analytical and Cognitive Skills:**

Student is expected to

- B1. Perform calculations to predict drug concentration after drug administration.
- B2. Given a pharmacokinetic data set, determine the value of pharmacokinetic parameters after different modes of drug administration.
- B3. Be able to develop a strategy for therapeutic drug monitoring for a range of narrow therapeutic window drugs.
- B4. Identify the problems associated with dosage regimens through analyzing patient data.
- B5. Gain therapeutic problem-solving skills.

**C- Subject-Specific Skills:**

Student should be able to

- C1. Recommend initial dosage regimen, or adjust dosage and recommend monitoring strategy to ensure safe and effective drug therapy.
- C2. Identify clinical manifestations of potential toxicities associated with patient's medication and recommend the appropriate course of action.
- C3. Apply the pharmacokinetic principles to specific problems commonly encountered in practice setting.
- C4. Identify patients who are likely to get maximal benefit from clinical pharmacokinetic monitoring.

**D- Transferable Key Skills:**

Students is expected to

- D1. Use different information sources to solve pharmacokinetics problems.
- D2. Develop the ability to communicate scientific principles and dosage recommendations to other healthcare professionals.

**Program Competencies Achieved:**

- 2.3 Identify pathophysiological basis of major human diseases
- 2.4 Assess symptoms and diagnostic tests and correlate them with associated diseases
- 2.8 Identify indications, side effects and contraindications of medicines
- 2.9 Identify drug-drug and drug-food interactions of medicines
- 2.15 Verify that patient therapy is based on best scientific evidence available
- 2.17 Advise patients and other health professionals on proper usage of medicines including their strength, frequency, dosage form and route of administration
- 2.18 Identify any medicament-related problems and take appropriate actions to resolve them
- 2.19 Recommend necessary modifications to patient therapy to optimize its safety and efficacy
- 7.4 Follow new advances in science related to the profession
- 7.5 Utilize information technology tools to enhance working experience

**20. Topic Outline and Schedule:**

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
Review the basic principles of clinical pharmacokinetics		Preceptors and academic supervisor Dr. Sameh	2. A1-3, B1, C1	Exams, quizzes, case discussion, presentations, and assignment	Specified in each lecture. General references provided below
<b>Apply the basic principles of clinical pharmacokinetics to patients in various clinical settings</b>		Preceptors and academic supervisor Dr. Sameh	A1-3, B1, C1	Exams, quizzes, case discussion, presentations, and assignment	Specified in each lecture. General references provided below
<b>Know how to collect relevant patient information and pharmacokinetic parameters necessary to produce the dosing and monitoring recommendations for specific drugs</b>		Preceptors and academic supervisor Dr. Sameh	A1-3, B1, C1	Exams, quizzes, case discussion, presentations, and assignment	Specified in each lecture. General references provided below
<b>Final Exam</b>					

**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
A1-3, B1, C1	Lectures written exams (MCQs and SAQs) oral discussion (clinical case based) Seminars on a range of obstetrical and gynecological topics. clinical rounds	
<b>Learning skills:</b>		
<ol style="list-style-type: none"> <li>1. Critical thinking</li> <li>2. Digital literacy</li> <li>3. Problem-solving skills</li> <li>4. Self-directed learning</li> </ol>		

**22. Evaluation Methods and Course Requirements:**

Opportunities to demonstrate achievement of the ILOs are provided through the following <u>assessment methods and requirements</u> :
<ol style="list-style-type: none"> <li>1. Exams</li> <li>2. Assignments</li> </ol>

**23. 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:

<b>Evaluation</b>	<b>Point %</b>	<b>Date</b>
<b>Written cases</b>	30%	
<b>Term paper</b>	20%	
<b>Quizzes</b>	10%	
<b>Final Exam</b>	40%	

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

Classrooms, internet classes

**24. Required equipment:**

Data show and internet connection

**25. References:**

A- Required book (s), assigned reading and audio-visuals:

1. **Basic clinical pharmacokinetics, By Michael E. Winter. Edition: 5 – 2009**
2. **Applied clinical pharmacokinetics, By Larry Bauer. Edition: 2 – 2008**
3. **Applied pharmacokinetics & pharmacodynamics: principles of therapeutic drug monitoring, By Michael E. Burton. Edition: 4 – 2006**
4. **Pharmacotherapy: A Pathophysiological Approach, ed. DiPiro *et al*, 8<sup>th</sup> edition, 2011.**

**Other Useful References:**

1. **Clinical pharmacokinetics: concepts and applications, By Malcolm Rowland, Thomas N. Tozer. Edition: 4 – 2010**
2. **Handbook of drug monitoring methods: Therapeutics and Drugs of Abuse, By Amitava Dasgupta. Edition: 1 – 2008**
3. **Concepts in Clinical Pharmacokinetics, By Joseph T. DiPiro. Edition:5 – 2010**
4. **Applied Biopharmaceutics & Pharmacokinetics, By Leon Shargel *et al*. Edition:6 – 2012**
5. **Introduction to pharmacokinetics and pharmacodynamics: the quantitative basis of drug therapy, By Thomas N. Tozer, Malcolm Rowland. Edition 1: 2006**
6. **Relevant original and review articles from scientific journals**

**26. Additional information:**

Other learning resources:

1. Access Pharmacy: <http://accesspharmacy.mhmedical.com/>
2. UpToDate: [www.uptodate.com](http://www.uptodate.com)

Name of Course Coordinator: Sameh Al-Zubiedi-Signature: ----- Date: Jan, 31, 2016

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

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

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

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

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Assistant Dean for Quality Assurance  
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