



الجامعة الزيتونة الأردنية
Faculty of Pharmacy
Al-Zaytoonah University of Jordan

" نحو تعليم صيدلاني متميز "
Toward Excellence in Pharmaceutical
Education

الجامعة الزيتونة الأردنية
Al-Zaytoonah University of Jordan
كلية الصيدلة
Faculty of Pharmacy



" Tradition and Quality "

Detailed Course Description - Course Plan Development and Updating Procedures/ Pharmacy Department	QF02/0408-3.0E
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Faculty	Pharmacy	Department	Pharmacy
Course number	0201762	Course title	Advanced Pharmaceutical Technology
Number of credit hours	2	Pre-requisite/co-requisite	-

Brief course description

This course provides students with an introduction to the drug delivery and targeting. In addition, this course will introduce students to the gastrointestinal tract physiology, immediate and modified release oral dosage forms. Moreover, this course will cover subjects on nano-carriers for drug delivery such as liposomes, micelles, nanoparticles, and polymeric nanoparticles.

Course goals and learning outcomes	
Goal 1	To familiarize the student with the interplay between delivery system design and physiological barriers.
Learning outcomes	1.1 Understand the biopharmaceutical and physiological aspects that affect route of administration, drug dissolution, absorption and bioavailability. 1.2 Correlate the design of delivery system to the physiological environment.
Goal 2	To introduce students to the principles and technologies applied in the preparation of pharmaceutical dosage forms and delivery systems.
Learning outcomes	2.1 Employ the principles and technology in designing drug delivery systems 2.2 Describe different drug delivery systems and drug targeting strategies
Goal 3	To introduce students to polymer science and nano-carriers used in drug delivery such as liposomes, micelles, and nanoparticles
Learning outcomes	3.1 Describe polymerization, polymer classification, and polymer nomenclature 3.2 Describe the preparation and application of liposomes, micelles, nanoparticles, and polymeric nanoparticles.
Textbook	1.- Aulton's Pharmaceutics: The Design and Manufacture of Medicines, by: M. E. 2.- Aulton and K. M. G. Taylor. 4 th Edition. 2013. Churchill Livingstone.
Supplementary references	Selected research articles



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Course timeline

Week	Number of hours	Course topics	Pages (textbook)	Notes
01	1 1	Introduction to Oral Drug Delivery		
02	1 1	Introduction to Oral Drug Delivery		
03	1 1	Modified Release Oral Drug Delivery Systems		
04	1 1	Modified Release Oral Drug Delivery Systems		
05	1 1	Introduction to Polymer Science		
06	1 1	Nanotechnology and Targeted Drug Delivery		
07	1 1	Nanotechnology and Targeted Drug Delivery		
08	1 1	Midterm Exam		
09	1 1	Liposomes		
10	1 1	Polymer-drug Conjugates		
11	1 1	Polymeric Micelles		
12	1 1	Polymeric Nanoparticles		



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13	1 1	Seminars		
14	1 1	Seminars		
15	1 1	Seminars		
16	1 1	Final Exam		

Theoretical course evaluation methods and weight	Midterm exam 30% Seminar 30% Final exam 40%	Practical (clinical) course evaluation methods	Semester students' work = 50% (Reports, research, quizzes, etc.) Final exam = 50%
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Approved by head of department		Date of approval	
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Extra information (to be updated every semester by corresponding faculty member)

Name of teacher	Dr. Rania Hamed	Office Number	225
Phone number (extension)	299	Email	rania.hamed@zuj.edu.jo
Office hours	Sunday till Thursday 11-12 PM		