



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

" نحو تعليم صيدلاني متميز "
Toward Excellence in Pharmaceutical
Education

جامعة 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
---	----------------

Faculty	Pharmacy	Department	Pharmacy
Course number	0201557	Course title	Drug Delivery Systems
Number of credit hours	3	Pre-requisite/co-requisite	Pharmaceutical Technology

Brief course description

This course will discuss the engineering of novel pharmaceutical delivery systems, with an emphasis on the design and application of materials that overcome drug delivery barriers or challenges. Topics will include drug delivery fundamentals and biopharmaceutics, materials and formulations for drug delivery, and various applications.

Course goals and learning outcomes	
Goal 1	To introduce students to the ideal drug delivery system and its characteristics
Learning outcomes	1.1 Learn the different routes of administration and the concept of bioavailability. 1.2 Understand the factors affecting drug absorption according to each route of administration. 1.3 Acquire basic knowledge about the design of drug delivery systems for the various routes of administration.
Goal 2	To familiarize students with different formulation and technological strategies to enhance and optimize drug delivery through various routes
Learning outcomes	2.1 Describe the limitations of oral drug delivery and formulation strategies to enhance oral bioavailability such as controlled release drug delivery systems. 2.2 Understand the advantages and limitations of drug delivery through the skin and mucosal membranes. 2.3 Realize the advantages of nanotechnology in drug delivery and the various approaches to nanocarrier-mediated drug targeting.
Goal 3	To promote active learning by preparing and presenting a seminar
Learning outcomes	3.1 Prepare and present a talk about a new drug delivery system and discuss it with the class in the form of a seminar.
Textbook	Aulton's Pharmaceutics: The Design and Manufacture of Medicines, by: M. E. Aulton and K. M. G. Taylor. 4th Edition. 2013. Churchill Livingstone.
Supplementary references	Selected research articles from the literature.



كلية الصيدلة - جامعة الزيتونة الأردنية
Faculty of Pharmacy
Al-Zaytoonah University of Jordan
" نحو تعليم صيدلاني متميز "

Toward Excellence in Pharmaceutical
Education

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

Course timeline				
Week	Number of hours	Course topics	Pages (textbook)	Notes
01	1	) Introduction to the course and its expected competencies		
	1	) Routes of administration		
	1	) Introduction to biopharmaceutics		
02	1	) Ideal drug delivery systems		
	2	) Oral drug delivery: Advantages and limitations		
03	1	) Oral drug delivery: Formulation strategies to enhance drug delivery		
	2	) Oral controlled release drug delivery systems		
04	3	Seminars		
05	1	First Exam		
06	3	) Transdermal drug delivery: Advantages, limitations, and formulation strategies		
07	3	) Mucosal drug delivery: Advantages, limitations, and formulation strategies		
08	2	) Introduction to nanotechnology and targeted drug delivery		
	1	) Major classes of nanocarriers		
09	3	Seminars		
10	1	Second Exam		
11	1	) Multifunctional nanocarriers and theranostics		
	2	) Stimuli-responsive and smart nanocarriers		
12	3	) Polymers in drug delivery		
13	3	) Gene and protein delivery		
14	3	Seminars		
15	1	Final exam		

Theoretical course evaluation methods and weight	First exam 25% Second exam 25% Final exam 50% (40% written + 10% seminars)	Practical (clinical) course evaluation methods	N/A
---	--	---	-----



كلية الصيدلة - جامعة الزيتونة الأردنية
Faculty of Pharmacy
Al-Zaytoonah University of Jordan
" نحو تعليم صيدلاني متميز "

Toward Excellence in Pharmaceutical
Education

جامعة 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
---	----------------

Approved by head of department		Date of approval	
-----------------------------------	--	------------------	--

Extra information (to be updated every semester by corresponding faculty member)

Name of teacher		Office Number	
Phone number (extension)		Email	
Office hours			