



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 صيدلة  
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	0201559	Course title	Gene and Protein Therapy
Number of credit hours	3	Pre-requisite/co-requisite	Pharmaceutical Biotechnology

### Brief course description

Gene and Protein Therapy course describes the basics of gene therapy and the routes of delivery in treatment of genetic diseases. This course covers different approaches and applications of stem cells therapy, therapeutic hormones and enzymes and monoclonal antibodies which used in treatment of different diseases, such as cancers.

Course goals and learning outcomes	
<b>Goal 1</b>	Understanding the new methods to treat diseases using genetic modifications.
Learning outcomes	The students should be able: 1.1 To understand the basics of gene therapy approaches to treat genetic diseases. 1.2 To know the routes of delivery of corrected genes into cells. 1.3 To know the approved gene therapies used to treat diseases.
<b>Goal 2</b>	Differentiating between the different approaches of stem cells therapy and applications.
Learning outcomes	The students should be able: 2.1 To understand the concept of cellular therapy and stem cells. 2.2 To evaluate the effect and possible side effects of different cellular treatments tested.
<b>Goal 3</b>	Understanding the role of therapeutic proteins in treating several diseases
Learning outcomes	The students should be able: 3.1 Understand the role of therapeutic proteins and monoclonal antibodies. 3.2 Determine the challenges of therapeutic proteins production. 3.3 To know the approved therapeutic proteins used to treat diseases.
<b>Textbook</b>	1.- Pharmaceutical Biotechnology : Fundamentals and Applications 4th ed. 2013 Daan J. A. Crommelin, Robert D. Sindelar, Bernd Meibohm
<b>Supplementary references</b>	Updated papers, reviews and information about new treatments in clinical trials or approved to be used clinically.



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### Course timeline

Week	Number of hours	Course topics	Chapter (textbook)	Notes
1	1 1 1	Gene therapy	14th	
2	1 1 1	Delivery of gene therapy	14th	
3	1 1 1	Embryonic Stem cells	14th	
4	1 1 1	Non-Embryonic Stem cells	14th	
5	1 1 1	Cytokines and interferons	8th	
6	1 1 1	Interleukins and tumor necrosis factor	9th	
7	1 1 1	Growth factors	10th	
8	1 1 1	Therapeutic hormones	11th	
9	1 1 1	Therapeutic hormones	11th	
10	1 1 1	Therapeutic enzymes	12th	
16 <sup>th</sup>		Final exam		



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<b>Theoretical course evaluation methods and weight</b>	First exam 25% Second exam 25% Final exam 50%	<b>Practical (clinical) course evaluation methods</b>	Semester students' work = 50% (Reports, research, quizzes, etc.) Final exam = 50%
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<b>Approved by head of department</b>		<b>Date of approval</b>	
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Extra information (to be updated every semester by corresponding faculty member)

<b>Name of teacher</b>	Lama Hamadneh	<b>Office Number</b>	235
<b>Phone number (extension)</b>	309	<b>Email</b>	<a href="mailto:lama.hamadneh@zuj.edu.jo">lama.hamadneh@zuj.edu.jo</a>
<b>Office hours</b>	11-12 am every day 8-9 am every day		