



Course Detailed Description – Procedures of the Course Plan Committee /Faculty of Pharmacy	QF02/0408–2.1E
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Department	Pharmacy
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Course Name	Gene and Protein Therapy	Course No.	201546
Prerequisite	Pharmaceutical Biotechnology	Credit Hours	3
Number & date of course plan approval		Brief Description	See form QF02/0409

Course Objective	At the end of this module, students will be able to understand the new methods to treat diseases using genetic modifications. The students will be able to differentiate between the different approaches of stem cells therapy and applications. Also, they will understand the role of therapeutic proteins in treating several diseases like autoimmune diseases and cancer
Intended Learning Outcomes	The students are expected to: <ol style="list-style-type: none"> 1. Understand the basics of gene therapy approach to treat genetic diseases. 2. Know the routes of delivery of corrected genes into cells. 3. Understand the concept of immunotherapy. 4. Understand the concept of cellular therapy and stem cells.
Course Topics	The course covers a wide range of pharmaceutical biotechnology topics including: <ol style="list-style-type: none"> 1. Gene therapy and genetic diseases. 2. Approaches to deliver corrected genes into cells 3. Stem cells therapy. 4. Therapeutic proteins.
Text Books	Pharmaceutical Biotechnology: Concepts and Applications Gary Walsh, 2007
References	Updated papers and reviews in the topics discussed.

Grade Determination	Midterm Exam = 30% Assignments, seminars, presentation = 30% Final Exam = 40%	Practical Course Grade Determination	Course Work = 60% (Reports, Term Papers, Quizes) Final Exam = 40%	
Course Outline				
Week	Hours	Subjects	Chapters in 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	
11	1 1 1	Therapeutic enzymes	12th	
12	1 1 1	Monoclonal antibodies	13th	
13	1 1 1	Monoclonal antibodies	13th	



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14	1 1 1	Cancer vaccines	13th	
15	1 1 1	Antisense therapy	14th	

Approved by Dept. Chair		Date of Approval	
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Extra Information: (Updated every semester and filled by course instructor)

Course Instructor	Dr. Lama Hamadneh
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