



Course Detailed Description – Procedures of the Course Plan Committee /Faculty of Pharmacy

QF02/0408–1.0

Department	Pharmacy
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Course Name	Pharmaceutical Biotechnology	Course No.	201545
Prerequisite	Pharmaceutical Biochemistry	Credit Hours	3
Number & date of course plan approval	2010-2011	Brief Description	See form QF02/0409

Intended Learning Outcomes	The course is intended to provide the students with the basic information regarding the pharmaceutical biotechnology topics. Pharmaceutical biotechnology Advances during the past twenty years and their effects on drug discovery and drug production in pharmaceutical industry.		
Course Topics	<ol style="list-style-type: none"> 1. Recombinant DNA technologies. 2. Drug discovery using biotechnology techniques. 3. Gene therapy. 4. Delivery of Biopharmaceuticals. 5. Pharmacogenomics and the effect of SNPs on drug metabolism 		
Text Books	Pharmaceutical Biotechnology: Concepts and Applications Gary Walsh, 2007		
References	1. Pharmaceutical Biotechnology. <i>O. Kayser and R.H. Muller. 2004</i>		
Grade Determination	<input type="checkbox"/> 1 st Exam = 25% <input type="checkbox"/> 2 nd Exam = 25% <input type="checkbox"/> Final Exam = 50%	<input type="checkbox"/> Practical Course Grade Determination	<input type="checkbox"/> Course Work = 50% (Reports, Term Papers, Quizes) <input type="checkbox"/> Final Exam = 50%

Course Outline				
Week	Hours	Subjects	Chapters in Textbook	Notes
1 st	1 1 1	Introduction - Important terms in Biotechnology - Prokaryotic and eukaryotic cells	1 st	
2 nd	1 1 1	Genes and genomes - Nucleic acids: Structure and function - Replication, transcription and translation	3 rd	
3 rd	3	Recombinant DNA technology.	3 rd and 5 th	
4 th	3	Specific DNA techniques.	3 rd	
5 th	1 1 1	Protein structure <ul style="list-style-type: none"> • Overview of protein structure • Higher level structure • Protein stability and folding - Protein post-translational modification	2 nd	
6 th	1 1 1	Production and down-stream processing of biotech products. <ul style="list-style-type: none"> • Expression systems. • Contaminants. Production and purification.	6 th and 7 th	
7 th	3	Formulation and delivery techniques of biopharmaceuticals	Ref 1 Ch. 9	
8 th	3	Genomics, Proteomics and techniques used for drug discovery.	4 th	
9 th		Pharmacogenomics	4 th	
10 th and 11 th		Genetic diseases and gene therapy - Cancer genetics	13 th and 14 th	
12 th		Hematopoietic Growth factors. - Interferons and interleukins	8 th 10 th	
13 th		Insulin. - Growth hormones	11 th	
14 th		Embryonic Stem cells - Non-Embryonic Stem cells - Cloning.	14 th	
15 th		Vaccines.	13 th and 5 th in ref. 1	
16 th		Monoclonal antibody based pharmaceuticals.	13 th	



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Approved by Dept. Chair

Date of Approval

Extra Information: (Updated every semester and filled by course instructor)

Course Instructor	Dr. Lama Hamadneh
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