



**Philadelphia University**  
**Faculty of Science**  
**Department of Biotechnology & Genetic Engineering**  
**Spring semester, 2008/2009**

**Course Syllabus**

<b>Course Title: Special Topic C</b>	<b>Course code: 240495</b>
<b>Course Level: 4</b>	<b>Course prerequisite (s) and/or corequisite (s):</b>
<b>Lecture Time:</b> - Mon/Wed: 12:45-14:15 p.m	<b>Credit hours: 3 Hours</b>

**Academic Staff Specifics**

<b>Name</b>	<b>Rank</b>	<b>Office No. &amp; Location</b>	<b>Office Hours</b>
<b>Salem Al-Maloul</b>	<b>Associate Professor</b>	<b>901</b>	

**Course module description:**

- This course is a required course designed for the fourth level students at the department of Biotechnology and Genetic Engineering. The course will provide the students with the basic biological and technical principles with regard to the field of gene cloning and its application in the various fields of biotechnology.

**Course module objectives:**

- To provide students with basic knowledge of the concepts and themes of gene cloning.
- To present the students with an overview of the various biological tools used in gene cloning.
- To outline the process of science in studying biological problems based on gene cloning techniques.

**Course/ module components:**

- **Books (title , author (s), publisher, year of publication)**

**Title: Gene Cloning: an introduction**

**Author(s)/Editor(s): T.A. Brown**

**Publisher: Van Nostrand Reinhold International**

**Year:**

**Edition:**

- **Support material (s) (vcs, acs, etc).**
- **Study guide (s) (if applicable)**
- **Homework and laboratory guide (s) if (applicable).**

**Teaching methods:**

- **Lectures, discussion groups, tutorials, problem solving, debates, etc.**
- **The use of colored transparent slides, power point presentation, illustration with models, educational animations and movies.**
- **The use of the free website provided by the publisher over the internet.**

**Learning outcomes:**

- **Knowledge and understanding**  
At the end of this module, students will be able to gain knowledge about:
  - **The various fundamental biological concepts and tools used in gene cloning.**
  - **The various steps of gene cloning.**
  - **The importance of gene cloning in the various fields of biotechnology.**
- **Cognitive skills (thinking and analysis).**  
At the end of this module, students will be able to develop their intellectual skills through understanding the concepts of gene cloning and formulating questions and thinking of the appropriate answers to their questions.
- **Communication skills (personal and academic).**  
At the end of this module, students will be able to develop personal communication skills through participating in open-discussions with their colleagues and instructors.
- **Practical and subject specific skills (Transferable Skills).**  
At the end of this module, students will be able to:
  - **Improve their ability to search for information using various communication settings.**
  - **Improve their ability to analyze data based on their understanding to the basic biological concepts of gene cloning.**
  - **Benefit from all supplementary material provided with the textbook.**

**Assessment instruments**

- **Short reports and/ or presentations, and/ or Short research projects**
- **Quizzes.**
- **Home works**
- **Final examination**

<b><u>Allocation of Marks</u></b>	
<b>Assessment Instruments</b>	<b>Mark</b>
First examination	<b>20</b>
Second examination	<b>20</b>
Final examination: 50 marks	<b>50</b>
Reports, research projects, Quizzes, Home works, Projects	<b>10</b>
<b>Total</b>	<b>100</b>

**Documentation and academic honesty**

- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

**Expected workload:**

**On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.**

**Attendance policy:**

**Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.**

Course/module academic calendar

<b>week</b>	<b>Basic and support material to be covered</b>
(1)	- Orientation & Introduction
<b>Part I: The basic principles of gene cloning</b>	
(2)	- Importance of gene cloning - Vehicles: Plasmids and Bacteriophages
(3)	- Purification of DNA from living cells
(4)	- Manipulation of purified DNA
(5)	- Introduction of DNA into living cells
(6)	- First Examination
(7)	- Cloning vectors for <i>E. coli</i>
(8)	- Cloning vectors for organisms other than <i>E. coli</i>
<b>Part II: Applications of gene cloning in biological research</b>	
(9)	- How to obtain a clone of a specific gene
(10)	- How to study a cloned gene
(11)	- Past and potential uses of gene cloning in research
(12)	- Second Examination
<b>Part III: Gene cloning in biotechnology</b>	
(13)	- Production of proteins from cloned genes
(14)	- Applications of gene cloning in biotechnology (1)
(15)	- Applications of gene cloning in biotechnology (2)
(16)	- Final Examination

Module references\* Books

**Title:** Gene Cloning: an introduction

**Authors:** T.A. Brown

**Publisher:** Van Nostrand Reinhold International

**Year:**

**Edition:**

\* Journals: -\* Websites: -