



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

**Course Syllabus**

<b>Course Title: Special Topic A</b>	<b>Course code: 240495</b>
<b>Course Level: 4</b>	<b>Course prerequisite (s) and/or corequisite (s):</b>
<b>Lecture Time:</b> <b>- Thurs.: 10:10-11:00 a.m</b>	<b>Credit hours: 1 Hour</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>908</b>	

**Course module description:**

- **This course is a required course designed for the forth level students at the department of Biotechnology and Genetic Engineering. The course will provide the students with the basic biological and technical principles behind the most advanced molecular technique, Polymerase Chain Reaction (PCR).**

**Course module objectives:**

- **To provide students with basic knowledge of the concepts and themes of PCR.**
- **To present the students with an overview of the biological tools used in PCR.**
- **To outline the process of science in studying biological problems using PCR.**

**Course/ module components:**

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

**Title: PCR**

**Author(s)/Editor(s): C.R. Newton & A. Graham**

**Publisher: Bios Scientific Publishers**

**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 PCR.**
  - **The various steps of PCR.**
  - **The importance of PCR 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 PCR 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 PCR.**
  - **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>25</b>
Second examination	<b>25</b>
Final examination: 50 marks	<b>50</b>
Reports, research projects, Quizzes, Home works, Projects	-
<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: Basic Principles and Methods</b>	
(2)	- What is PCR?
(3)	- Instrumentation, Reagents and Consumables
(4)	- Amplifying the Correct Product
<b>Part II: Techniques and Applications</b>	
(5)	- Cloning and Modification of PCR Products
(6) First Examination	- Isolation and Construction of DNA Clones
(7)	- PCR Mutagenesis
(8)	- Sequencing PCR Products
(9)	- New Sequence Determination and Genome Mapping
(10)	- Fingerprinting
(11)	- Characterizing Unknown Mutations
(12) Second Examination	- Analysis of Known Mutations
(13)	- Detecting Pathogens
(14)	- Quantitative PCR
(15)	- Revision
(16)	- Final Examination

Module references\* Books

Title:

Authors:

Publisher:

Year:

Edition:

\* Journals: -\* Websites: -