



Philadelphia University
Faculty of Science
Department of Biotechnology and Genetic Engineering
1st semester, 2009/2010

Course Syllabus

Course Title: Immunology practical	Course code: 240338
Course Level: 3rd	Course prerequisite (s) and/or corequisite (s): Immunology 240337
Lecture Time: Monday 13.10-16.00	Credit hours: 1

Academic Staff Specifics

Name	Rank	Office Number and Location	Office Hours	E-mail Address
Dr. Khaled Al-Qaoud	Associate Professor	907	Mon +Wed 11.15-12.45 Thurs 11.10-12.00	al_qaoud_khaled@hotmail.com

Teaching methods:

Lectures, experiments, Result discussion, Reports, Tutorials, problem solving, debates, etc.

Learning outcomes:

- Knowledge and understanding

Students should be familiar with the components of the immune system (innate and acquired), types and location of lymph nodes, Humoral (antibody, complement and cytokines, and cellular (lymphocytes, granulocytes, NK cells etc). Immunization of animals and analysis of immune response using different techniques as precipitation, agglutination, ELISA and immunoblots. New technology in cell identification and separation.

- Cognitive skills (thinking and analysis).

Working groups should be able to discuss their results after experiment carry out, solve and discuss problems and trouble shootings.

- Communication skills (personal and academic).

Raising questions and discussion of results with supervisor, brain storming and group work

- Practical and subject specific skills (Transferable Skills).

Ability to perform experiments on animals on industrial scales and work in R&D departments. Antibody biotechnology experience transfer, cell separation and stem cell research.

Assessment instruments

- Short reports and/ or presentations, and/ or Short research projects
- Quizzes.
- Home works
- Final examination: 50 marks

<u>Allocation of Marks</u>	
Assessment Instruments	Mark
Mid Term Examination	30%
Final examination: 50 marks	50%
Reports, research projects, Quizzes, Home works, Projects	20%
Total	100%

Documentation and academic honesty

- Documentation style (with illustrative examples)

- Protection by copyright
- Avoiding plagiarism.

Course/module academic calendar

week	Basic and support material to be covered	Homework/reports and their due dates
(1)	Preparation of buffers and solutions. Complete Blood count CBC. Differential blood count	Homework will be assigned during the course and have one week a maximum due date
(2)	Handling of experimental animals And blood collection.	
(3)	Immunization of mice	
(4)	Direct agglutination ABO blood grouping	
(5)	Isolation of human peripheral blood mononuclear cells (PBNC) using Ficollpaque	
(6)	Immunoprecipitation (Double diffusion)	
Mid Term Exam		
(7)	Enzyme Linked Immunoabsorbent Assay (ELISA)	
(8)	Immunophenotyping by Flow cytometry	
(9)	Magnetic separation of immune cells	
(10)	Analysis of cytokine production by human lymphocytes using Real-Time PCR	
Final Exam		

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.