



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

Course Syllabus

Course Title: Animal Tissue Culture Lab	Course code: 240382
Course Level: 3 rd year	Course prerequisite (s) and/or corequisite (s): 240381
Lecture Time: Wed and Thurs 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

Course module description:

This module is a basic requirement for the department. It provides insights into the practical aspects of cell culture. The lab should provide sufficient information to perform the basic techniques. It is intended as an introduction to the theory of techniques and the biology of cultured cells

Course module objectives:

- Describe the techniques used in tissue culture.
- Describe the Equipments used on tissue culture.
- Understand the safety procedures need for tissue culture.
- Be familiar with techniques of single cell as well as organ culture

Course/ module components

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

Title: "Culture of Animal Cells: A manual of basic technique", 4th Edition

Author(s)/Editor(s): Freshney RI.

Publisher: WILEY-LISS

ISBN:0-471-34889-9

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

Teaching methods:

The course involves theoretical description of methodology, discussion about practical work and experiment execution. Students should work in groups, follow up their experiments, write reports about results and discuss all related matters with supervisor.

Learning outcomes:

- Knowledge and understanding

The students should be able to know how to generate a suitable sterile environment for a successful cell culture.

They should be able to differentiate between different types of cells and tissue sources.

- Cognitive skills (thinking and analysis).

The students will learn the ability to correlate between different biological samples and show the importance of different media in tissue culture

- Communication skills (personal and academic).

NA

- Practical and subject specific skills (Transferable Skills).
 - The ability to handle different sources of tissue culture.
 - Using of tissue culture techniques in pharmaceutical studies and toxicity analysis.
 - Benefit of such skills and practices in higher studies.

Assessment instruments

- Short reports, presentations, and/ or Short research projects
- Quizzes.
- Problem solving and trouble shooting
- Middle and Final exams

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

Documentation and academic honesty

- Documentation style (with illustrative examples)

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- Protection by copyright
 - Avoiding plagiarism.

Course/module academic calendar

week	Basic and support material to be covered	Homework/reports and their due dates
(1)	Introduction to Cell culture Lab	Homework will be assigned during the course and have one week a maximum due date
(2)	Lab design, Equipment, Safety in the Lab, and Aseptic Conditions	
(3)	Preparation and Sterilization of Apparatus, Reagents and Equipments	
(4)	Cells Counting and Cell Viability Assessment	
(5)	Dissecting Mouse and Primary Culture of Splenocytes	
(6)	Culture of Human Monocytes	
(7)	Culture of Bone Marrow cells	
(8)	Human Amniocyte Culture	
(9)	Midterm Exam	
(10)	Organ Disaggregation Techniques	
(11)	Generation of Hybridoma and monoclonal antibody production	
(12)	Cell Freezing (Cryopreservation)	
(13)	Primary Cell Culture (Chicken Embryo)	
(14)	Secondary Cell Culture (Chicken Embryo)	
(15)	Revision	
(16)	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.

Module references

Books

Title: “Culture of Animal Cells: A manual of basic technique”, 4th Edition
Author(s)/Editor(s): Freshney RI.
Publisher: WILEY-LISS
ISBN:**0-471-34889-9**

Journals

Websites

<http://www.molecular-plant-biotechnology.info/animal-tissue-culture-and-hybridoma-technology/>

<http://www.biotechmea.org/>

<http://www.getter.co.il/biomed/biomed-lab/>

http://www.protocol-online.org/prot/Cell_Biology/Cell_Culture/index.html

<http://faculty.yu.edu.jo/akhaled/>