Philadelphia University
Faculty of Science
Department of Biotechnology and Genetic Engineering
1st Semester 2014/2015

Course Syllabus

Course Title: Cytogenetic practical	**Course code: 240336**
Course Level: 3rd level	**Course prerequisite (s) and/or corequisite (s):** Cytogenetic **(240335)**
Lecture Time: Sunday:14.10-16.00 pm	**Credit hours:** 1

Academic Staff Specifics

Name	Rank	Office Number and Location	Office Hours	E-mail Address
Dr. Raida W. Khalil,	**Associate Professor**	914	M&W 11-13pm	r_khalil@philadelphia.edu.jo

Course module description:

This module is a major (Mandatory) Departmental course for the Third Year and taught by Technology-based labs. This module deals mainly with human Chromosomal analysis-Karyotyping.

Course module objectives:

This module gives the students the opportunity to:

-See what Human chromosomes look like under the light microscope

-Distinguish chromosomes on the basis of reproducible banding patterns that are accentuated with the use of various staining protocols using a mild trypsin treatment followed by staining with the dye Giemsa and other techniques that allow for increased resolution of chromosome banding patterns.

permitting differentiation of a greater number of Chromosomal abnormalities

-Chromosome nomenclature (Abnormalities)

-Demonstration the FISH technique

Course/ module components

Laboratory guide manual prepared by Dr. Raida W. Khalil

Teaching methods:

Lab sessions. *The 48 hours in total will be mainly Particles sessions with few open lab sessions*

Learning outcomes:

Communication skills (personal and academic). -Module language: English

During each practical session the lecture will provide full assessment and instructions for the students.

Further assessments provided in the open lab sessions, which will be assigned by the lab demonstrator.

-the students have the option to submit their module activities either by email or submitting by hand

-the students are welcome to share open discussions through the net

Practical and subject specific skills (Transferable Skills).

Ability to work with Human samples and the ability to obtain, record, observe and analyze information in the laboratory.

Assessment instruments

Allocation of Marks	
Assessment Instruments	**Mark**
Mid term exam	**30%**
Final examination: 50 marks	**40%**
Reports, Quizzes and Home works, open labs	**30%**
Total	**100**

Course/module academic calendar

Week	Basic and support material to be covered
(1)	**Safety manual** Cytogenetic Analysis of human Peripheral Blood Regular procedure for culturing of human blood
(2)	Cytogenetic Analysis of human Peripheral Blood Harvesting of Blood culture
(3)	Cytogenetic Analysis of Human Peripheral Blood Slide preparation
(4)	Cytogenetic Analysis of Peripheral Blood G-Banding (Using trypsin)
(5)	The standard karyotype Chromosome number and banding patterns Idiograms
(6)	Cytogenetic Analysis of Peripheral Blood C-Banding constitutive Heterochromatin banding
(7)	**Midterm Exam**
(8)	The standard karyotype Chromosome number and banding patterns Idiograms using light Microscope
(9)	**Continue--**The standard karyotype Chromosome number, banding patterns (Light microscope)
(10)	High Resolution Chromosome Analysis of Peripheral Blood) and Cytogenetic abnormalities
(11)	Continue---High Resolution Chromosome Analysis of Peripheral Blood) and Cytogenetic abnormalities Experimental applications and Nomenclature.
(12)	Molecular Cytogenetic Fluorescence In Situ (Hybridization (FISH
(13)	**Final**

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: Cell Biology-A laboratory Handbook,2006
(.Author(s)/Editor(s):Celis,Julio E. (ed Publisher:
Amsterdam: Elsevier Academic Press ISBN: 0-
12-164731-5
0-12-164732-3
0-12-
164733-1 X-
0-12-164734

Title: Analyzing Chromosomes(basics from background to bench),2000
Author(s)/Editor(s): B. Czepulkowski
Publisher: Springer
ISBN-13: 978-
0387916095
0387916091

Title: Human Chromosomes(manual of basic techniques),1989
Author(s)/Editor(s): Ram S. Verma and Arvind Babu
Publisher: Pergamon
press ISBN**:** 0-08-
035774-1

Websites

http://www.protocol-online.org/

http://www.accessexcellence.org/RC/VL/GG/
http://www.ornl.gov/sci/techresources/human_Genome/launchpad/
http://learn.genetics.utah.edu/units/disorders/karyotype/karyotype.cfm