



Philadelphia University
Faculty of Science
Department of Biotechnology & Genetic Engineering
First Semester, 2010/2011

<u>Course Syllabus</u>	
Course Title: Environmental Biotechnology	Course code: 240352
Course Level: Third year	Course prerequisite (s) and/or corequisite (s): 240216
Lecture Time: Section 1. 10:10 - 11:00, Tues, Thursday Practical section 1. 8:10–11:10 Sunday section 2. 13:15 – 16:00 Thursday	Credit hours: 3 (2 +1)

<u>Academic Staff</u>				
<u>Specifics</u>				
Name	Rank	Office Number and Location	Office Hours	E-mail Address
Dr. Nabil A.S. NIMER	Assisstant Professor	1114S		n_nimer@philadelphia.edu.jo

Course module description:

The aim of this module is to provide an understanding of the specific application of metabolic capabilities and molecular biology of **microorganisms** for the exploitation of many areas of biotechnology to reverse and prevent environmental problems

Course module objectives and knowledge outcome:

By the end of the course students should be able to grasp the fundamentals of environmental monitoring, sewage treatment, pollution control of domestic, agricultural and industrial wastes, bioremediation and clean biotechnology, energy and biofuels, and mineral resource recovery

Course/ module components

- **Text Book**

(Environmental Biotechnology (2004.1

.Scragg, A

Longman

(Environmental Microbiology, Laboratory Manual (2005.2

.Pepper, I.L. & Gebra, C.P

.Elsevier Academic Press

.In addition to the above, the students will be provided with handouts by the lecturer

Teaching methods:

The 45 hours in total will be mainly lectures with few tutorials and including two /one hour exams and one ten minute exam

Learning outcomes:

- Cognitive skills (thinking and analysis).

The capacity to identify different perspectives, theories and models potentially relevant to different subject matter and to appraise their strengths and weaknesses.

The capacity to be aware of the limitations of existing knowledge and understanding and to recognize the relevance of developing new approaches to situations and problems.

Learning logical thinking through taking the important ideas, facts and conclusions involved in a problem and arranging them in a chains like progression that takes on a meaning in and of itself.

- Communication skills

**Speak with more confidence and listen carefully to build rapport.
Students will be encouraged to express themselves more effectively**

Assessment instruments

<u>Allocation of Marks</u>	
Assessment Instruments	Mark
First examination	15
Second examination	15
One, ten minute short exam	10
Final examination:	30
Laboratory	30
Reports: 10 marks	
Midterm exam: 10 marks	
Final : 10 marks	
Total	100

Course/module academic calendar

Week	Subject
(1)	.Introduction to Environmental Biotechnology
(2)	Env. Monitoring, Sampling & Physical, chemical & biological analysis
(3)	.Env. Monitoring, Monitoring pollution & biosensors
(4)	
(5)	.Sewage treatment
(6)	Sludge treatment and disposal
(7)	
(8)	
(9)	Bioremediation
(10)	Biotechnology and sustainable technology
(11)	
(12)	Biofuels
(13)	
(14)	Natural resources recovery
(15)	
(16)	Agrobiotechnology.

Expected workload:

On average students need to spend 3 hours of study and preparation for each 50-minute lecture/tutorial and 3 hours in the laboratory.

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 faculty of science 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.