



**Philadelphia University**  
**Faculty of Science**  
**Department of Biotechnology & Genetic Engineering**  
**Second semester, 2009/2010**

**Course Syllabus**

<b>Course Title:</b> Microbiology	<b>Course code:</b> 240216
<b>Course Level:</b> Second year	<b>Course prerequisite (s) and/or corequisite (s):</b> 240102/240107
<b>Lecture Time:</b> Section 1:12: 45 -14:15 Mon Wed Section 2:11:10 -12:00 Sun, Tues, Thurs	<b>Credit hours:</b> 3

**Academic Staff**

**Specifics**

<b>Name</b>	<b>Rank</b>	<b>Office Number and Location</b>	<b>E-mail Address</b>
Dr. Nabil A.S. NIMER	Assisstant Professor	1114S	nabil_nimer@philadelphia.edu.jo

**Course module description:**

**Introduction to the microbial world. Diversity of prokaryotes, their development, structure and function. Prokaryotic metabolism, nutrition and growth.**  
**Microbial genetics and control. Fundamental principles of the interrelationship of microorganisms and man, and their role in the environment.**

**Course module objectives and knowledge outcome:**

**By the end of the course students should be able to:**

- \*Differentiate between the structure and gene organization in prokaryotic and eukaryotic cell.**
- \* Describe the differences between the cell wall structure for Gram + and Gram -ve cells.**
- \* Describe the shapes, gram reaction and procedures to identify the major groups of bacteria and the use of different types of media for that purpose.**

- \*Describe the requirements for bacterial growth, bacterial growth and growth curve.
- \* Define the environmental parameters that affect growth and microbial adaptation to extreme environment.
- \* Describe the diversity in microbial world.
- \* Describe the different physical and chemical methods for controlling microbial growth.
- \* Define genetic material transfer and recombination in prokaryotes.

### Course/ module components

- **Books**  
**Microbiology, 2006 6<sup>th</sup> edition**  
**Prescott, L. *etal***  
**McGrow hill publication**

### Teaching methods:

The 45 hours in total will be mainly lectures with few tutorials and including two one hour exams.

### 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

<b>Allocation of Marks</b>	
<b>Assessment Instruments</b>	<b>Mark</b>
First examination	<b>20</b>
Second examination	<b>20</b>
Final examination: 50 marks	<b>50</b>
Reports, Quizzes, Home works.	<b>10</b>
<b>Total</b>	<b>100</b>

## Course/module academic calendar

<b>week</b>	<b>Basic and support material to be covered</b>
(1)	Introduction to microbiology
(2)	Prokaryotic cell structure and function
(3)	
(4)	Microbial nutrition
(5)	Microbial growth
(6) <b>First examination</b>	Control of Microorganisms by physical agents
(7)	Control of Microorganisms by chemical agents
(8)	Microbial genetics
(9)	Plasmids
(10)	Microbes and Genetic Engineering
(11) <b>Second examination</b>	Microbial Taxonomy
(12)	
(13)	Archea
(14)	Viruses
(15)	The Fungi and Slime molds
(16) <b>Final Examination</b>	Medical Microbiology

### Expected workload:

On average students need to spend 3 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 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.

### Module references

#### **Books**

Biology of Microorganisms 1997 8<sup>th</sup> edition  
Madigan, M *etal*  
Microbiology An Introduction 2002 7<sup>th</sup> edition  
Tortora, G.T *eta*  
ISBN 0-8053-7597-X