



Philadelphia University  
Faculty of Science  
Department of Biotechnology  
First semester, 2009/2010  
Course Syllabus

<b>Course code:</b> 240496	<b>Course Title:</b> Special topic (B)
<b>Course Level:</b> 4th year  <b>Lecture Time:</b> 9:10-10:0 (Sunday and Tuesday) <b>Lecture Hall:</b> 1001	<b>Course prerequisite (s) and/or co requisite (s):</b> None  <b>Credit hours:</b> 2 hours

#### Academic Staff Specifics

Name	Rank	Office Number	Office Hours	Email Address
Dr. Lolita Qouta	Assistant Professor	816	10:0 – 11:0 Mon. & Wed.	<a href="mailto:lqouta@philadelphia.edu.jo">lqouta@philadelphia.edu.jo</a>

#### Course module description

This module is a 2 hour credit elective course. Through the course, the students will be exposed to some of the fundamental concepts in plant biochemistry and molecular biology. Topics will include the energy flow through photosynthesis, hormones and growth regulators, development, plant microbe interactions and adaptations to biotic and abiotic environmental stress. The students will be directed to some of the tools of molecular biology that are used in recent plant science to understand and relate gene expression to

plant function.

### **Course module objectives**

This course was designed to

- Provide the students with a fundamental knowledge of some of the biochemical reactions involved in plant growth and development.
- Develop a comprehensive understanding of the hormonal and environmental regulation of gene expression.
- Appreciate the variety and the significance of the reproductive strategies employed by the plants.

### **Course/ module components Text Books**

Please note that the text below has been ordered but it is going to take a while till sufficient copies are available at the library. You will be directed to the assigned chapters and feel free to borrow my copy over the weekends.

- Title: Biochemistry and molecular biology of plants  
Authors: Buchanan, B.B.; Gruissem, W.; and Jones, R.L.  
Publisher: the American Society of Plant Physiologists. Maryland, USA. 2000

### **Learning outcomes**

Upon completion of this course, the students should be able to :

- Understand the chemical interactions involved in energy flow in plant systems, plant development and physiology of adaptation to stress.
- Understand the complexity of the plant genome, and how environmental changes can lead to meristem transitions.
- Gain an in depth understanding and develop a sense of appreciation for the role of the plants in human existence.

### Communication skills (personal and academic).

Students are expected to read the assignments and discuss them in class. Doing so will enrich their scientific background in botany and boost their self confidence in participating in conversations and debates discussing the important role of plants in human life. Students will be able to appreciate the arrangement and the compatibility of all the reactions taking place simultaneously inside a plant system

### Assessment instruments

Assessment Instruments	Mark
First quiz	10
First hour exam	15
Second quiz	10
Second hour examination	15
Participation in class and attendance	10
Final examination	40
Total	100

### Course/module academic calendar

Date	Subject
13/10	Introduction: Membranous organelles of a plant cell (Plastids)
18/10, 20/10, 25/10 & 27/10	Photosynthesis
1/11, 3/11, 8/11, 10/11, 15/11 & 22/11	Metabolic and developmental integration: Long distance transport Nitrogen and sulfur Biosynthesis of hormones and elicitor molecules

17/11	Engaged in a conference so there will be no lecture
24/11/2009 الثلاثاء	First hour exam
29/11, 1/12 & 6/12	Reproductive development
13/12 & 15/12	Plant environment and agriculture Responses to plant pathogens
8/12	Eid
20/12, 22/12, 27/12 & 29/12	Plant environment and agriculture Responses to abiotic stress
3/1, 5/1, 10/1 & 12/1	Molecular physiology of mineral nutrition

### **Attendance policy**

Students are expected to attend all lectures. Absence from lectures should 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 will receive a mark of zero for the course.

### **Expected workload**

The students are encouraged to attend all the lectures and keep good notes of every topic discussed in class. Reading the covered material in advance will definitely enrich the student's vocabulary and enable him/her to follow the items discussed in the lecture. Every student is expected to spend 2.5 hours per week to prepare and/or study the assigned material.