

## Course E-Syllabus

1	<b>Course title</b>	Plant physiology
2	<b>Course number</b>	5501343
3	<b>Credit hours</b>	3
	<b>Contact hours (theory, practical)</b>	theory
4	<b>Prerequisites/corequisites</b>	5501101
5	<b>Program title</b>	bachelor degree in biological sciences
6	<b>Program code</b>	
7	<b>Awarding institution</b>	The University of Jordan
8	<b>School</b>	School of Basic and Marine Sciences
9	<b>Department</b>	Biological Sciences
10	<b>Level of course</b>	2/3
11	<b>Year of study and semester (s)</b>	Summer 2020
12	<b>Final Qualification</b>	Bachelor
13	<b>Other department (s) involved in teaching the course</b>	-
14	<b>Language of Instruction</b>	English
15	<b>Teaching methodology</b>	<input checked="" type="checkbox"/> Blended <input checked="" type="checkbox"/> Online
16	<b>Electronic platform(s)</b>	<input checked="" type="checkbox"/> Moodle <input type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input checked="" type="checkbox"/> Zoom <input checked="" type="checkbox"/> Others Google forms, Facebook messenger
17	<b>Date of production/revision</b>	July, 2020

### 18 Course Coordinator:

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### 19 Other instructors:

<p>Name: Office number: Phone number: Email:</p> <p>Name: Office number: Phone number: Email:</p>
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## 20 Course Description:

As stated in the approved study plan.

*Plant water relations: absorption, transport and transpiration. Mineral nutrition, photosynthesis, phloem translocation, phytohormones' growth, dormancy, seed germination, phytochrome and photomorphogenesis and stress physiology*

## 21 Course aims and outcomes:

### A- Aims:

*This course is designed to provide students with comprehensive exposure to the subject of plant physiology. The course aims to acquaint students with the basic life processes of plant organism, to explain any significant happening and reaction, which affect and makes the life of plants*

### B- Intended Learning Outcomes (ILOs):

Upon successful completion of this course, students will be able to:

1. *Understand the basic principles underlying the structure of plants;*
2. *Learn about the connection between plants cellular structure and function;*
3. *Understand how history and scientific research in these areas.*
4. *Comprehend the fundamental concepts of plant physiology*
5. *Describe the physiological mechanisms of plant growth, function, and development*
6. *Recognize and describe how plants respond to their environment*

## 22. Topic Outline and Schedule:

Week	Lecture	Topic	Teaching Methods*/platform	Evaluation Methods**	References
1	1.1	Overview; Plant Structure I	Zoom		<p>Title: Plant Physiology            •Authors: Lincoln T., Eduardo Zeiger            •Edition: 4            •Publisher: Sinauer Associates, 2006            •ISBN: 0878938567, 9780878938568</p> <p>Title: Plant Innate Immunity Signals and Signaling Systems            •Authors: P. Vidhyasekaran            •Edition: 1            •Publisher: Springer Netherlands, 2020            •ISBN: 978-94-024-1940-5</p>
	1.2	Overview; Plant Structure II	Zoom		
	1.3	Water Balance of Plants	Zoom, YouTube educational videos	Corrective feedback	
	1.4	Solute Transport	Zoom, YouTube educational videos	Corrective feedback	
	1.5	Focus on Water	Zoom, YouTube educational videos		
2	2.1	Signals and Signal Transduction	Zoom, Google forms	Quiz I	
	2.2	ROS			
	2.3	Stress and Antioxidant Functions to Enhance Photosynthesis			
	2.4	Free radicals and antioxidants in plants	Zoom, YouTube educational videos	Corrective feedback	
	2.5				
3	3.1	Photosynthesis: The Light Reactions	Zoom, email, and messenger	Homework I	
	3.2		Zoom		
	3.3	Photosynthesis: The Carbon Reactions	Zoom		
	3.4		Zoom		
	3.5		Zoom	Corrective feedback	
4	4.1	Respiration	Zoom, Google forms	Quiz II	
	4.2		Zoom		
	4.3		Zoom		
	4.4		Zoom		
	4.5		Zoom		
5	5.1	Growth & Dev: Embryogenesis I	Zoom, email and messenger	Homework II	
	5.2	Growth & Dev: Embryogenesis II	Zoom		
	5.3	Growth & Dev: Organogenesis I	Zoom		
	5.4	Growth & Dev: Organogenesis II	Zoom		
	5.5	Flowering and Floral Development	Zoom	Corrective feedback	
6	6.1	Plant hormones: Abscisic acid	Zoom, Google forms	Quiz III	
	6.2	Auxins & Cytokinins	Zoom		
	6.3	Ethylene & Gibberellins	Zoom		

	3.4	Jasmonates	Zoom	
	6.5	Salicylic acid	Zoom	Corrective feedback
7	7.1	Plant diseases	Zoom, email, and messenger	Homework III
	7.2	Plant pathogens	Zoom	
	7.3	Common pathogenic infection methods	Zoom	
	7.4	Physiological plant disorders	Zoom	Corrective feedback

- Teaching methods include: Synchronous lecturing/meeting; Asynchronous lecturing/meeting
- Evaluation methods include: Homework, Quiz, Exam, pre-lab quiz...etc

### 23 Evaluation Methods:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	Period (Week)	Platform
Quizzes	25	Anatomy of stems, leaves and roots, Annual rings, Morphological and anatomical interpretation	2 <sup>nd</sup> , 4 <sup>th</sup> and 6 <sup>th</sup>	Google forms
Homework	25	Meristems, growth, & differentiation, Annual rings and leaf morphology	3 <sup>rd</sup> 5 <sup>th</sup> and 7 <sup>th</sup>	email, Facebook
Corrective feedback & participation	0	All	All	Direct contact
Final Exam	50			

### 24 Course Requirements (e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc):

- Students should have a computer or smartphone capable of interacting with social media and online teaching platforms.

### 25 Course Policies:

- A- Attendance policies: as stated by the department
- B- Absences from exams and submitting assignments on time: as stated by the department
- C- Health and safety procedures:: fulfill the university regulations
- D- Honesty policy regarding cheating, plagiarism, misbehavior:: fulfill the university regulations

E- Grading policy: as approved by the department

F- Available university services that support achievement in the course:  
University E-services available on the website

## 26 References:

A- Required book(s), assigned reading and audio-visuals:

*Lincoln T., Eduardo Zeiger (2006) Plant Physiology. Sinauer Associates. pp: 672. (Available in PDF format for students).*

B- Recommended books, materials, and media:

*Plant Physiology, 2nd. L. Taitz and E. Zeiger*  
*Plant Physiology, 4th. F. Salisbury and Cleon W. Ross*

## 27 Additional information:

- *On average students need to spend 2 hours of study and preparations for each 60-minutes lecture*
- *The course syllabus was modified from the original version to reflect the needs of long-distance learning for this intensive summer course.*

Name of Course Coordinator: --Dr. Mohammad Wahsha-Signature:  Date: 5/7/2020

Head of Curriculum Committee/Department: ----- Signature: -----

Head of Department: **Dr. Zeinab H. Arabeyyat** Signature: **Dr. Zeinab H. Arabeyyat**

Head of Curriculum Committee/Faculty: ----- Signature: -----

Dean: ----- Signature: -----