Hashemite University
Faculty of Science
Course Syllabus
Plant Biology
Second Semester
2021/2022

Department of Biology & Biotechnology

Course Title: **Plant Biology**
Pre-requisite: 1801041102
Designation: : Obligatory
Instructor's E-mail: raj@hu.edu.jo
Internet Home Page: staff.hu.edu.jo/rajaa

Course Number: 1801041252
Credit Hours: 4 (3 hrs. theory + 1hr. practical)
Instructor: Rajaa Abueideh
Office Location: Bio-103 & /or Herbarium Lab. at Herbarium building

Office Hours: 9-10 Sunday, 9-11 Tuesday + messages using Microsoft teams
Lecture Times: 9.30 - 11 Mon & Wed
Practical Sessions : 11 – 2 Wednesday
Lecture Room:

Course Description: Plant Biology course provides students with the fundamentals of plant biology, including the plant cell, plant tissues and organs (roots, stems, leaves, flowers, fruits and seeds). Water in plants, plant metabolism and development, meiosis and alternation of generations, plant breeding, propagation and biotechnology. Plant names and classification. The course emphasizes also on plant kingdom (non-vascular and vascular plants phyla).
The skills in light microscopy and specimen preparation for microscopic observation will be attained in the practical training during this course.

Text Book: **Sterns's Introductory Plant Biology,** by K.R. Stern, J.E Bidlack and S.H. Jansky, 14th edition. McGraw-Hill. New York 2017.

References: **Laboratory manual For Introductory Plant Biology** by K.R. Stern, 14th edition. McGraw-Hill. New York 2017.
Botany an Introduction to Plant Biology, by J. D. Mauseth, 6th edition, Jones and & Bartlett Publishers, Boston, 2016.
Plant Biology by Thomas L. Rost**,** et al, 2nd edition, Thomas/Brooks/Cole. Belmont 2006.
Botany: an introduction to plant biology by Weier T.Elliot, 6th edition. *John* Wiley & Sons. New York 1982

Major Topics Covered by Theory Classes

Topics	Chapter in text book	No. of Weeks	Contact Hours*
Introduction to Plant Biology	1	0.5	1.5
Cells	3	1	3
Tissues	4	1	3
Roots and Soils	5	1	3
Stems	6	1	3
Leaves	7	1.5	4.5
Flowers, Fruits and Seeds	8	1.5	3.5

Topics	Chapter in text book	No. of Weeks	Contact Hours*
Meiosis and Alternation of Generations	12	0.5	1.5
Plant Biotechnology, Plant Breeding and Propagation	13 & 14	1	3
Plant Names and Classification	16	0.5	1
Non-Vascular plants	20	1	3
The Seedless Vascular Plants	21	1	3
Seed Plants: Gymnosperms	22	1	3
Seed Plants: Angiosperms	23	1	3
Plant Hormones	24	0.5	1
Total		**14**	**40**

*Contact Hours include lectures and exams.

Major Topics Covered by Practical Sessions

	Topics	No. of Weeks	Contact Hours*
1	Introduction, lab. Instructions , The microscope & The plant cell structure	1	3
2	Plant Tissues I: Meristems, Parenchyma Collenchyma & Sclerenchyma	1	3
3	Plant Tissues II: Secretory Tissues, Epidermis and Periderm	1	3
4	Plant Tissues III: Xylem & Phloem	1	3
5	Plant Organs Anatomy and Morphology I : Monocot and Dicot and Gymnosperms Roots	1	3
6	Plant Organs Anatomy and Morphology II : Monocot and Dicot stems	1	3
7	**Mid-Term Exam**		
8	Plant Organ Anatomy and Morphology: Leaves	1	3
9	Anatomy and Morphology of The Flower and Types of inflorescence & Types of Fruits	1	3
10	Non-Vascular Plants (Mosses)	1	3
11	Vascular Seedless Plants (Ferns)	1	3
12	Gymnosperms & Angiosperms	1	3
13	Revision		
14	**Final Exam**		
	Total	**13**	**39**

*Contact Hours include laboratory sessions, quizzes, field trips and exams.

- **Specific Outcomes of Instruction (Course Learning Outcomes):**

After completing this course units, the students will be able to:

	Course Learning Outcomes (CLO)	(SO*)
CLO1.	Understand the importance of plants to the human being and civilization	(a), (c),(e),(g), (h)
CLO2.	Understand the hierarchy of plant structure by learning the basic features of plant cells, tissues, and organs	(a), (b), (c),(h)

CLO3.	Describe the anatomical and morphological differences among different plant organs.	(a), (b),(c)
CLO4.	Understand the components of soil ecosystem and how they interact.	(a), (b), (g),(h)
CLO5.	Develop an idea about fruits , seeds dispersal	(a), (b), (g),(e)
CLO6.	Understand the function of water in plants and develop an idea about, the forces that move water from soil into and through the plant and into the air.	(a), (b), (d),(g),(h)
CLO7.	Realize the process of photosynthesis as an energy converter process	(a), (b),(d),(h)
CLO8.	Understand the alternation of generations in plants.	(a)
CLO9.	Develop an idea about plant biotechnology and vegetative propagation in plants.	(a),(c),(d), (e),(g),(h)
CLO10.	Understand the binomial system of plant nomenclature	(a))
CLO11.	Develop knowledge concerning the great diversity among plants	(a), (c),(g)
CLO12.	Differentiate between angiosperms and gymnosperms based on the anatomy and morphology of different organs.	(a), (c)
CLO13.	Use the compound microscope properly in examining plant tissues.	(a), (c),(d), (f),(h)
CLO14.	Report the observation in schematic drawing.	(a), (c),(f)
CLO15.	Practice collecting, preserving and identifying common plants.	(a), (c), (f),(g), (h)

*(SO) = Student Outcomes Addressed by the Course.

- **Student Outcomes (SO) Addressed by the Course:**

#	Outcomes Description Applied and Natural Sciences Student Outcomes	Contribution
(a)	A broad understanding of the major concepts in the biological sciences.	H
(b)	The ability to recognize the relationship between structure and function at all levels: molecular, cellular, and organismal.	H
(c)	The technical and analytical skills to use biological instrumentation and proper laboratory techniques.	H
(d)	The ability to apply methods of scientific inquiry in biology.	M
(e)	An understanding of the role of science in society and the ethical conduct of science.	H
(f)	The ability to communicate effectively	H
(g)	A recognition of the need for, and an ability to engage in life-long learning	M
(h)	A knowledge of contemporary issues	H
H = High, **M** = Medium, **L** = Low		

Grading Plan

Theory			
First Exam	$6^{th} – 7^{th}$ week	20 points	
Second Exam	$11^{th} – 12^{th}$ week	20 points	
Final Exam	$15^{th} – 16^{th}$ week	30 points	To be announced by the registrar
	Total	**70 points**	
Practical			
Quizzes		5 points	
Attendance & Activities		5 points	
Mid – Term Test		10 points	
Final Test		10 points	
	Total	**30 points**	
Total		**100points**	

General Notes: (Attendance Policy) students are expected to attend every class and arrive on time in compliance with HU regulations. In case you find yourself in a situation that prevents you from attending class or exam, you have to inform your instructor. If you miss more than **4 classes** or **2 laboratory sessions**, you cannot pass the course. Makeup excuses will be accepted only for very limited justified cases, such as illness and emergencies. Changing your section without informing your instructors is not accepted at all.