1	**Course title**	Botany
2	**Course number**	5501241
3	**Credit hours (theory, practical)**	3
	Contact hours (theory, practical)	-
4	**Prerequisites/corequisites**	
5	**Program title**	Biology
6	**Program code**	
7	**Awarding institution**	The University of Jordan
8	**School**	Marine Sciences
9	**Department**	Marine biology
10	**Level of course**	½
11	**Year of study and semester (s)**	2019/2020
12	**Final Qualification**	bachelor
13	**Other department (s) involved in teaching the course**	-
14	**Language of Instruction**	English
15	**Date of production/revision**	September 2019

16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.
Mon 11-12.30, email: m.wahsha@ju.edu.jo

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.
Mon 8-9.30, email: m.wahsha@ju.edu.jo

18. Course Description:

As stated in the approved study plan.

19. Course aims and outcomes:

A- Aims:

1. State the importance of botany to society and their everyday life.
2. Define botany and identify characteristics common to all plants.
3. Describe various systems of classification and basic properties of organisms found in each Domain or Kingdom and classify common plants based on the binomial system of nomenclature.
4. List and recognize each component of the scientific process.
5. Describe the complexity of plant cell structure and function.
6. Compare and contrast the structure and function of different groups of plants.
7. Compare and contrast different methods of energy production and explain the importance of energy to sustain plant life.
8. Identify and describe the process and individual reactions of photosynthesis.
9. Identify and describe the process and individual reactions of fermentation/respiration.
10. Explain the basic chemical composition and processes occurring in all plants.
11. Describe the basic principles of plant production.
12. List the components and complexity of heredity in plants and explain how its accuracy is maintained.

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to

1. Students will be able to demonstrate knowledge of the levels of organization (molecules, organelles, cells, tissues, organs, whole plant) in flowering plants and be able to relate functional aspects at one level to function at a higher or lower level of organization.

2. Students will be able to demonstrate understanding of the adaptative significance of modifications of the three vegetative organs of vascular plants: roots, stems, and leaves.

3. Students will be able to demonstrate knowledge of the two most basic metabolic pathways of plants: respiration and photosynthesis. In addition, students will demonstrate understanding of the adaptative significance of the CO2 concentrating mechanisms found in C4 and CAM plants.

4. Students will be able to demonstrate knowledge of which chemical elements are required for plant life and examples of the specific aspects of plant life that utilize those elements.

5. Students will be able to demonstrate understanding of the interactions between plants and microorganisms in the context of plant mineral nutrition, especially with regard to the nitrogen cycle.

6. Students will be able to distinguish between asexual and sexual reproduction in flowering plants and be able to demonstrate understanding of the significance of a cloning reproductive system versus one which allows for genetic recombination.

7. Students will be able to use a compound light microscope to investigate plant structure and function.

8. Students will be able to make accurate records of visual information via annotated scale drawings.

20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
Introduction: The Consequences of being sessile	1	Dr. Wahsha			Plant Anatomy (2008) by James D. Mauseth Blackburn Press, 560 pages
The Role of Plants in the Ecosystem: Carbon Cycle and energy flow	2	Dr. Wahsha		Homework	
The Role of Plants in the Ecosystem: Nutrient cycling	3	Dr. Wahsha	by evaluating the Homework results		
Classification of living things: The Five Kingdoms	4	Dr. Wahsha		Quiz	
Introduction to the structure of the plant cell	5	Dr. Wahsha	by evaluating the quiz results		
Cell division	6	Dr. Wahsha			
Survey of plant tissues	7	Dr. Wahsha			
Water movement in plants	8	Dr. Wahsha		Midterm	
Leaf Morphology, specialized adaptations	9	Dr. Wahsha	by evaluating the Midterm results		
Photosynthesis	10	Dr. Wahsha		Homework	
Roots: structure and function	11	Dr. Wahsha	by evaluating the homework results		
The Angiosperm	12	Dr. Wahsha			
Diversity of	13	Dr. Wahsha	by evaluating the quiz results	Quiz	

the Plant Kingdom					

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- *The primary method of instruction will be video lecture presentations coupled with student learning techniques. Student learning will be enhanced through small group discussions through discussion forums of relevant topics. Key components of topics will be reinforced using quizzes and exams. Presentations and discussions attempt to relate concepts presented to our own lives, society in general, and/or the environment when possible. Internet assignments, article summaries, and homework assignments made up of critical thought questions, thinking like a scientist and science, technology, and society questions will also be used.*

22. Evaluation Methods and Course Requirements:

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

- *The thinking skills will be developed by encouraging students to conclude answers to different questions that the instructor intends to use during the presentation of the scientific material.*
- *The instructor intend to stimulate the student`s analytical thinking side via connections with general aspects in daily life or through questions, net searching, and home works.*

23. Course Policies:

A- Attendance policies:

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, the student shall be considered to have withdrawn from the course.

B- Absences from exams and handing in assignments on time:

C- Health and safety procedures:
fulfil with the university requirements

D- Honesty policy regarding cheating, plagiarism, misbehavior:
Anyone caught cheating on a quiz or exam; more than 30 % of plagiarism in a given homework, the student will receive a failing grade and will be reported to the dean. In order to guarantee that you are not suspected of cheating, please keep your eyes on your own materials and do not converse with others during the quizzes and exams.

E- Grading policy:

Assessment Instruments	Mark
Mid Term examination	30%
Attendance and participation	5%
Quizzes	10%
Home works	5%
Final Examination	50%
Total	100%

F- Available university services that support achievement in the course:

24. Required equipment: (Facilities, Tools, Labs, Training….)

- *Computer, data show, teaching room and board*

25. References:

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

Botany: An Introduction to Plant Biology by James Mauseth (4th edition) is our required text. You will be expected to read required chapters in this text.

Recommended books, materials, and media:

Biology of Plants - Raven, P.H., Evert, R.E. and Eichhorn S. H. –, 6th or 7th Ed
Photographic Atlas for the Botany Laboratory by Van De Graaff, Rushforth, and Crawley is recommended for laboratory work.

26. Additional information:

On average students need to spend 2 hours of study and preparations for each 60-minutes lecture

Name of Course Coordinator: --Dr. Mohammad Wahsha -Signature:  Date: 6/10/2019

Head of curriculum committee/Department: ---------- Signature: ----------

Head of Department: ---------- Signature: ----------

Head of curriculum committee/Faculty: ---------- Signature: ----------

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