هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission
اعتماد
NCAAA
2024
TP-153

Course Specification
(Bachelor)

Course Title:	PLANT ANATOMY AND MORPHOLOGY
Course Code:	BIOL-121
Program:	Biology
Department:	Biology
College:	College of Science
Institution:	Majmaah University
Version:	3 rd
Last Revision Date:	29/12/2023

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: 3 (2 + 2) hours					
Equivalent to 4.5 ECTS credits					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (2 / First Year)					
4. Course general Description:					
This course includes a brief study of morphology of different plant parts and a detail anatomical study of plant cell, roots, stems, leaves, flowers, and fruits and finally the course explains how to differentiate & compare between different groups of plants depending on their different morphological & anatomical characters.					
5. Pre-requirements for this course (if any)**:**					
BIOL-101 General Biology					
6. Co-requirements for this course (if any)**:**					
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7. Course Main Objective(s):					
This course provides a scientific foundation in floral morphology and anatomy, covering leaf, root, and stem structures, along with vascular plant systems. It focuses on interpreting plant growth processes, identifying various cell and tissue types, and understanding reproductive and developmental anatomy, including endosperm formation.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning	NIL	NIL
3	Hybrid • Traditional classroom • E-learning	NIL	NIL
4	Distance learning	NIL	NIL

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	30
3.	Field	-
4.	Tutorial	-
5.	Others (specify)	-
Total Contact hours		60

Workload (based on the academic semester)

No	Activity	Work Load /Hours
1.	Contact hours	60
2.	Self-study (Assignments, quizzes, reports, Discussions, Library, research)	60
	Total Workload	120
Equivalent to **ECTS credit points**		**4.5**

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.2	Recognize the function of roots, stem, leaves and flower beside the function of cell organelles, plant tissues and various anatomical strictures of plant	K2	Introductory PowerPoint lectures, Theory, and practical lessons	Paper and pen exam Oral exam and midterm exam
2.0	**Skills**			

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.2	Utilize basic concepts of plant anatomy and morphology in economic and environmental approaches	S2	Practical sessions to gain practical skills	Examinations Quizzes competition Homework
2.4	Compare between morphological and anatomical structure of plant organs in monocot and dicots roots, stems and leaves	S4	Discussion sessions And Practical sessions to gain practical skills	Practical examination
3.0	**Values, autonomy, and responsibility**			
3.1	work constructively in a group, cooperating with their leaders and seniors and with other students, thus initiating the value of teamwork and compliance to work through systems; Build a friendly relationship between instructor and themselves so that students can understand more the subject matter. Use computers and other updated materials in their mode of teachings,	V1	(a) work and Solving problems in small and large groups during tutorial to Increase and enforce Interpersonal Skills (b) Use computer technology to get access to the course material.	Oral examination Observation of student behavior. Marks for student's presentation using power point.

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	e.g., using CD, information items and accessories in their presentations (audio visuals).			

C. Course Content

No	List of Topics	Contact Hours
1.	**Introduction to plant morphology:** ▪ A typical angiosperm plants. ▪ Types angiospermous the basis of form. ▪ Types of Angiosperms based on life span. ▪ Types of roots ▪ Modification of Tap Root ▪ Modification of adventitious Roots ▪ Functions of Roots	**2**
2.	STEM ▪ Characteristics of Stem. ▪ Strong stem ▪ Weak stems Modifications of stem ▪ Underground modifications of stem ▪ Superficial modifications of stem ▪ Aerial modifications of stem	**2**
3.	LEAF ▪ Cotyledonary Leaves ▪ Bract leaves or hypophyses ▪ Scale leaves or cataphylls ▪ Prophylls ▪ Foliage leaves ▪ Parts of a typical foliage leaf Modifications of Leaves	**2**
4.	The Flower ▪ Some words related to flower ▪ Insertion of floral leaves ▪ Parts of a flower ▪ Aestivation ▪ Parts of stamen	**2**

	▪ Union of stamens ▪ Dehiscence of anthers ▪ Fusion of carpels ▪ Ovary ▪ Placentation ▪ Style	
5.	INFLORESCENCE ▪ Racemose. ▪ Cymose. ▪ Compound Inflorescence ▪ Special Type of Inflorescence	**2**
6.	Introduction to plant Anatomy: ▪ Plant Cell ▪ Plant Cell Organelles ▪	**2**
7.	▪ Live contents of protoplast ▪ Non-Live contents of protoplast	**2**
8.	▪ Plant tissue ▪ Meristematic tissues ▪ The characteristics of meristematic ▪ Classification of meristematic tissue ▪ Shoot apex organization ▪ Root apex organization	2
9.	▪ Permanent tissues ▪ Simple tissue	2
10.	▪ Parenchyma Cells ▪ Collenchyma Cells ▪ Sclerenchyma Cells	2
11	Complex tissue ▪ Xylem ▪ Phloem ▪ Special tissues (Secretory tissues)	2
12	The Tissue System ▪ The epidermal tissue system ▪ The ground or fundamental tissue system ▪ Vascular tissue system	2
13	Internal Structure of Stems, Roots & Leaves ▪ Internal Structure of Dicotyledonous Stems ▪ Internal Structure of Monocotyledonous Stems	2
14	▪ Internal Structure of Dicotyledonous Root ▪ Internal Structure of Monocotyledonous Root	**2**

15	▪ Internal Structure of Dicot or Dorsiventral Leaf ▪ Internal Structure of Monocot or Isobilateral Leaf	**2**
Total		**30**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Home work/Group project	every week	10
2.	Quiz, Oral Presentations	5th & 9th	10
3.	Mid exam I	7th & 8th	15
4.	Mid exam II	11th & 12th	15
٥.	E. Exam	14th Week	10
6.	Final Exam	18 Weeks	40
			100

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	American Journal of Botany
Supportive References	• Journal of Botany.
Electronic Materials	Esau's Plant Anatomy: Meristems, Cells, and Tissues of the Plant Body: Their Structure, Function, and Development, 3rd Edition
Other Learning Materials	Electronic materials of Lecture notes and PowerPoints available in 'Black board' database

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom and fully equipped laboratory facilities are available
Technology equipment (projector, smart board, software)	E-podium and smart board facilities are available
Other equipment (depending on the nature of the specialty)	Nil

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Direct assessment
Effectiveness of Students assessment	Program Leader	Direct assessment
Quality of learning resources	Students	Indirect assessment
The extent to which CLOs have been achieved	Faculty	Direct assessment
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	BIOLOGY DEPARTMENT COUNCIL
REFERENCE NO.	**7**
DATE	**4/4/1446 [07/10/2024]**