



Course Specification

(Bachelor)

Course Title: **Botany and Crop Science**

Course Code: **APSA1602**

Program: **Sustainable Agriculture Techniques**

Department: *Enter Department Name .*

College: **Applied College**

Institution: **Umm Al-Qura University**

Version: **Version 1**

Last Revision Date: **15 June 2025**



Table of Contents

A. General information about the course:	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	4
C. Course Content	4
D. Students Assessment Activities	5
E. Learning Resources and Facilities	5
F. Assessment of Course Quality	5
G. Specification Approval	6





A. General information about the course:

1. Course Identification

1. Credit hours: (3 credit hours)

3 credit hours

2. Course type

A. ☐ University ☐ College ☒ Department ☐ Track ☐ Others

B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: (.....)

4. Course General Description:

This course introduces students to the biological foundations of plant life with a focus on crops important to sustainable agriculture. Emphasis is placed on understanding plant structure, function, growth cycles, and environmental responses. Students will learn to identify and manage major crop types suited to local climates and resource-efficient systems, preparing them for careers in modern, sustainable farming.

5. Pre-requirements for this course (if any):

None

6. Co-requisites for this course (if any):

None

7. Course Main Objective(s):

By the end of the course, students will be able to:

- Understand basic plant anatomy and physiological processes related to crop growth.
- Identify stages of crop development and their cultivation needs.
- Assess environmental factors influencing crop productivity.
- Apply plant science concepts to practical, sustainable farming decisions.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	100
2	E-learning		
3	Hybrid		



No	Mode of Instruction	Contact Hours	Percentage
	<ul style="list-style-type: none"> Traditional classroom E-learning 		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	42
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		72

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

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Describe the structure and function of key plant organs (roots, stems, leaves, flowers)	K1	Lectures, diagrams, group discussions	Quizzes, final exam
1.2	Explain environmental factors affecting plant growth (light, water, nutrients, climate).	K1	Case-based teaching, examples from local crops	Assignments, midterm, final exam
1.3	Identify different categories of crops and their growth stages	K3	Lectures, comparison charts, visual aids	Quiz, presentation
2.0	Skills			
2.1	design basic cultivation methods based on crop needs and growth phases.	S5	Group discussions, real-life examples	Crop report, oral questioning



Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
2.2	illustrate basic crop planning principles using sustainable practices.	S1	Group projects, scenario analysis	Project presentation, report
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate responsible behavior toward plant care and natural resource use.	V2	Classroom discussions, field-relevant ethics	Oral participation, report

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to crop science and classification: annuals, perennials, monocots, dicots	2
2.	Plant structure and function I: Roots, stems, and leaves	2
3.	Plant structure and function II: Flowers, seeds, and reproductive organs	2
4.	Key physiological processes: photosynthesis, respiration, transpiration	2
5.	Nutrient and water transport in plants: xylem and phloem function	2
6.	Plant hormones and growth regulation (e.g., auxins, gibberellins)	2
7.	Stages of plant growth: germination, vegetative growth, flowering, fruiting	2
8.	Environmental factors affecting plant development: light, temperature, water, and nutrients	2
9.	Overview of local crop types: cereals, legumes, vegetables, and fodder	2
10.	Sustainable planting techniques: crop rotation, companion planting, organic inputs	2
11.	Field diagnostics: recognizing nutrient deficiencies and common stress symptom	2
12.	Basic crop planning: choosing crops, timing, and resource matching	2
13.	Group work: developing a seasonal crop plan for a small-scale field	2
14.	Review of Common Diseases of Local Crops: Identification, Symptoms, and Basic Prevention Strategies	2
Total		

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Periodical Exam(s)	3	10%
2.	Mid Term Exam (Theoretical)	6	20%





No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
3.	Mid Term Exam (practical)	7	10%
4.	Reports and essay	5	10%
5.	Final Practical Exam	15	10%
6.	Final Exam	16	40%

*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	<ul style="list-style-type: none"> - Taiz, L., Zeiger, E., Møller, I.M., & Murphy, A. (2021). Plant Physiology and Development. Sinauer Associates. - Acquaaah, G. (2011). Principles of Crop Production: Theory, Techniques, and Technology. Pearson.
Supportive References	<ul style="list-style-type: none"> - FAO Crop Production Guidelines - Ministry of Environment, Water and Agriculture (KSA) training manuals on crop cultivation - Selected chapters from Botany: An Introduction to Plant Biology by James D. Mauseth
Electronic Materials	<ul style="list-style-type: none"> - Multimedia tutorials and animations on plant structure and function (e.g., YouTube channels: PlantSnap, Crop Science Academy) - Online crop calendar tools from fao.org and agrivision4u.com
Other Learning Materials	<ul style="list-style-type: none"> - Live/dried crop specimens and preserved plant parts for demonstration - Charts of crop growth stages and nutrient deficiency symptoms - Handouts, planting guides, and flashcards prepared by the instructor

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ul style="list-style-type: none"> - Standard classroom equipped with projector and whiteboard - Access to demonstration tables or agricultural lab (if available)



Items	Resources
Technology equipment (projector, smart board, software)	<ul style="list-style-type: none"> - Multimedia projector - Smartboard or large display monitor - Document camera or visualizer for showing plant parts (if available)
Other equipment (depending on the nature of the specialty)	<ul style="list-style-type: none"> - Preserved plant models or fresh crop samples (for anatomical study) - Crop stage charts, plant growth posters, and compost demo kits. (if available) - Optional: shaded area or small plot for live plant observation (if available)

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Direct: CLOs alignment analysis Indirect: End-of-course student evaluation surveys
Effectiveness of Students assessment	Peer reviewers / Faculty	Direct: Internal review of assessment rubrics and tools for clarity and alignment
Quality of learning resources	Students and Faculty	Indirect: Feedback surveys on textbooks, visuals, and digital materials
The extent to which CLOs have been achieved	Program Advisory Board / External Experts	Indirect: Consultations with local agricultural experts and employers
Other		

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

Assessment Methods (Direct, Indirect)





G. Specification Approval

COUNCIL /COMMITTEE	Umm Al-Qura University Council
REFERENCE NO.	851110214476/195626
DATE	18/2/1447

