Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program and Course Description Guide

2024

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: **University of Mosul**

Faculty/Institute: **Faculty of Agriculture and forestry**

Scientific Department: **Horticulture and landscape design**

Academic or Professional Program Name: **Plant physiology**

Final Certificate Name: **Bachelor**

Academic System Classes / courses

Description Preparation Date: **2023\9\1**

File Completion Date: **2024\2\1**

Signature:

Head of Department Name:

Date:

Signature:

Scientific Associate Name:

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

1. **Program Vision**
Program vision is written here as stated in the university's catalogue and website.

2. **Program Mission**
Program mission is written here as stated in the university's catalogue and website.

3. **Program Objectives**
1- graduation of students with the ability to work in the field of Agriculture in general and the field of agricultural extension in particular 2-graduation of students with the ability to communicate and interact with the rural community 3-preparing specialized cadres in agricultural education and extension for Bachelor's and master's degrees 4 - work on the dissemination of new agricultural ideas among farmers and agricultural employees through cooperation and coordination with the agricultural departments of the ministry in Nineveh Governorate 5-studying the problems related to agricultural extension work, dissemination and adoption of agricultural ideas developed through the research of professors and graduate students 6-providing students with a broad and deep understanding of the specialization of agricultural extension

4. Program Accreditation

Does the program have program accreditation? And from which agency?

5. Other external influences

Is there a sponsor for the program?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

* This can include notes whether the course is basic or optional.

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
2023-2024\ Third	**PLPH210**	**plant physiology**	**theoretical**	**practical**

8. Expected learning outcomes of the program

Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1

Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Learning Outcomes 3	Learning Outcomes Statement 3
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies

Teaching and learning strategies and methods adopted in the implementation of the program in general.

10. Evaluation methods

Implemented at all stages of the program in general.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor						

Professional Development

Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12. **Acceptance Criterion**
(Setting regulations related to enrollment in the college or institute, whether central admission or others)

13. **The most important sources of information about the program**
State briefly the sources of information about the program.

14. Program Development Plan

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
2023-2024 Second	PLPH210	Plant physiology	standerd	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**

Course Description Form

1. Course Name: Plant physiology

2. Course Code: **PLPH210**

3. Semester / Year: **2024 - 2025**

4. Description Preparation Date: **1 / 9 / 2024**

5. Available Attendance Forms: in person

6. Number of Credit Hours 2 theoretical + 3 practical (5) / Number of Units (3.5)

7. Course administrator's name (mention all, if more than one name)

Name: Lecturer Doctor Ragheed Hamza Mohammed, Lecturer Doctor Ahmed Abd-AlRaheem Mohammed
Email: **ragheed_alsuitan@uomosul.edu.iq** **Ahmed79@uomosul.edu.iq**

8. Course Objectives

Enabling the student to understand and comprehend what is related to plant physiology and its relationship to other sciences

Enabling the student to know the most important scientific methods in learning about plant physiology

Enabling the student to become familiar with the concept of plant physiology

Enabling the student to be able to investigate plant cells and all phenomena related to plant physiology

- **The student can explain all aspects of plant life through plant physiology**

9. Teaching and Learning Strategies

- Interactive lecture
- Brainstorming
- Dialogue and discussion
- Field Training
- Practical exercises
- Field project
- Self-education

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theoretica	A1: Learn about the concept of plant physiology B1: He possesses the practical and mental knowledge and concepts that help him in studying plant physiology D3: Community members participate and work to educate them about the importance of plant physiology and its impact on controlling pollution. E1: It contributes to enhancing the values of science among community members and making them aware of the importance of plant physiology and increasing green spaces to improve the environment and serve society.	Introduction to pla physiology	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
	3 Practical	A1: Learn about the types of microscopes, writing the parts of the microscope, and how the microscope works A2: Count the parts of the microscope	Microscope installation	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
2	2 Theoretica	A2: Defines water absorption systems and their importance and environmental aspects B1: He possesses practical and mental knowledge and concepts that help him know the relationship of plants to water C5: Successfully balances the investment, use and employment of plants in accordance with their relationship with water	Plant relationship wit water	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test

	3 Practical	A1: Defines a plant cell A2: List the components of a plant cell 4A: Compare the meristematic and adult cells	Studying the plant cel and its characteristics preparing slides, and revealing the cell components through practical experiments through the microscope	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
3	2 Theoretica	A2: Determines the rising sap systems in the plant	Xylem sap	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
	3 Practical	A1: He knows every method of expressing the concentrations of solutions C4: Prepare solutions of different percentages, molarity, molarity, and standard D1: Acquiring the skills of preparing various solutions to treat plants with	Scientific experiment on methods of expressing the concentrations of solutions	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
4	2 Theoretica	A2: Determines the systems of water rising to the top of the plant C4: Recognizes the anatomical structure of the bark D3: Recognizes the elements of the cortex E1: Contributes to the recognition of phloem transport	Phloem sap	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
	3 Practical	A1: He knows every type of solution A2: List the characteristics of each type of solution C4: Identify and prepare true solutions, colloidal and emulsion C5: Distinguish between true, colloidal and emulsion solutions	Scientific experiment to prepare real and colloidal solutions, emulsions and colloid	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
5	2 Theoretica	C4: Draws up plans and programs for development in the field of plant transpiration D3: Community members participate and work to educate them about the importance of transpiration in plants and its impact on controlling irrigation. E1: Dissects the stomatal system	Transpiration in plant	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
	3 Practical	A1: Knows every phenomenon of colloids	Scientific experiment on the physiological	Interactive lecture, brainstorming, dialogu	semester test 1, final test

		A2: List the properties of colloids D1: Acquire skills in stabilizing colloids through scientific experiments	properties of the Tandall phenomenon	and discussion, self-learning,	
6	2 Theoretica	A2: Determines the types of mineral nutrition in plants C4: Draws up plans and programs for development in the field of plant nutrition D1: Acquiring the communication skills necessary to deal with confidence and certainty at the individual and group levels D3: Community members participate and work to educate them about the importance of plant nutrition and its role in regulating growth E1: Contributes to identifying vitamins necessary for growth and development	Mineral nutrition in plants	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
	3 Practical	A1: Diffusion is known A2: Enumerates the laws of diffusion C2: Conduct diffusion experiments	Scientific experiment on the phenomenon o diffusion	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
7	2 Theoretica	A3: He knows the enzyme and what it is composed of C4: splitting enzymes C5: called enzymes	Plant enzymes	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
	3 Practical	A1: Learn about the devices used in measurement, the measurement methods used and their steps	Scientific visit to laboratories	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
8	2 Theoretica	A3: Learn about photosynthesis and its effect on plant growth and development C4: Identify the factors affecting photosynthesis	Photosynthesis	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
	3 Practical	A1: Identify the types of plasma cells that occur in cells and the factors that cause them A2: Explain the reasons for this phenomenon	Plasmolysis phenomenon in plants	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
9	2 Theoretica	A4: Learn about the concept of plant respiration C3: He uses the information he needs	Respiration in plants	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test

		and what is available to him to master his work			
	3 Practical	A1: The student knows the phenomenon of imbibition and the phenomenon of osmosis and recognizes the types of cell membranes in plants. A2: Enumerates the factors affecting each phenomenon C2: Conducts scientific experiments in osmosis	Scientific experiment on osmosis and semi-permeable membrane	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
10	2 Theoretica	A2: Defines different definitions of growth C5: Successfully balances the investment, use, and employment of plants to suit growth processes	Growth in plants	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
	3 Practical	A1: The student knows the term permeability A2: Enumerate the factors affecting membrane permeability C2: identifies substances that penetrate quickly into the plant and substances that are slow to penetrate	Scientific experiment on permeability	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
11	2 Theoretica	A2: Learn about sensation and movement in plants and their importance in plant growth and development C5: Successfully balances the investment and use of movement and sensation in the plant and employs them in accordance with growth processes	Sensation and movement in plants	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
	3 Practical	A1: The student knows the stomata A2: The student explains the structure of the stoma and enumerates the factors affecting the opening and closing of the stomata C2: Explains the stomatal system	The stomatal system	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
12	2 Theoretica	A2: Learn about Verbalization and its	Verbalization	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test

		importance in crop flowering C5: Successfully balances the investment and use of plants and their employment in accordance with their Verbalization requirements to increase production			
	3 Practical	A1: The student knows the phenomenon of transpiration 2A: Enumerates and explains methods for measuring transpiration rate C2: Explains the stomatal system	Transpiration measurement	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
13	2 Theoretica	A2: It determines the type of nutrition and nutrients the plant needs for growth and development C3: He uses the information he needs and what is available to him to master his work	Mineral nutrition in plants	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
	3 Practical	A1: The student learns about the causes and times of this phenomenon and the factors causing it C2: Conducts scientific experiments on the phenomena resulting from radical pressure C4: Uses special devices to measure dissolved solids in plants	Phenomena resulting from root pressure an measurement of dissolved solids in plants	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
14	2 Theoretica	C3: He uses the information he needs and what is available to him to master his work C5: Successfully balances the investment and use of ornamental plants and uses them to adapt to drought and heat tolerance processes.	Adapt to drought and heat	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
	3 Practical	A1: The student explains the steps for estimating the leaf area of plants, as well as the steps for estimating plant pigments and the equations related to that.	Measuring plant leaf area and estimating plant pigments (chlorophyll and xanthophyll)	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test

		C4: Draw plans and programs for the estimation of plant dyes C5: Successfully balances the increase in the leaf are of the plant			
15	2 Theoretica	C4: Draws up plans and programs for development in the field of adaptation t salinity and light C5: Successfully balance the investment and use of ornamental plants and thei adaptations	Adaptation to salinity and light	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test
	3 Practical	A1: The student learns about the benefits of the respiration process in plants and how it occurs, along with an explanation of methods for measuring respiration rate. C5: Differentiate between aerobic and anaerobic respiratio	Measuring plant respiration	Interactive lecture, brainstorming, dialogu and discussion, self-learning,	semester test 1, final test

11. Course Evaluation

seq	Evaluation methods	Evaluation date (week)	Grade	Relative weight %
1	Report 1	fourth week	2.5	2.5
2	Report 2	fifth week	2.5	2.5
3	Short test (1)	sixth week	2	2
4	Quiz Short test (2)	fourteenth week	2	2
5	Quiz Short test (3)	fifteenth week	1	1
6	Semester test (1)	sixth week	7.5	7.5
7	Semester test (2)	eleventh week	7.5	7.5
8	Final theoretical test	Final semester exams	40	40
9	Practical field project	fifteenth week	5	5
10	Field evaluation	third and fifth week	2	2
11	Short test (1)	first week	1	1
12	Quiz Short test (2)	fourth week	0.5	0.5
13	Quiz Short test (3)	fourteenth week	2.5	2.5
14	Live drawings and homework	Weeks 6, 8, 9, 10, 11, 12 and 13	2.5	2.5
15	Final practical test	Final semester exams	2	2
	Total	100	100%	100%

12. Learning and Teaching Resources

Main references (sources)	- Muhammad, A. A. K. 1988. Plant physiology. part One. Dar Al-Kutub for Printing and Publishing - University of Mosul - Republic of Iraq. - Muhammad, A.A. K. 1988. Plant physiology. The second part. Dar Al-Kutub for Printing and Publishing - University of Mosul - Republic of Iraq. - Muhammad, A. A. K. 1988. Plant physiology. the third part. Dar Al-Kutub for Printing and Publishing - University of Mosul - Republic of Iraq.
Plant physiology and development	Plant physiology and development
Electronic Referenc Websites	https://exa.unne.edu.ar/biologia/fisiologia.vegetal/PlantPhysiologyTaiz2002.pdf

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