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_2025

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 Anbar

Faculty/Institute: College of Agriculture

Scientific Department: Plant Protection.

Academic or Professional Program Name: Bachelor / Agricultural Sciences – Plant Protection

Final Certificate Name: Bachelor / Agricultural Sciences – Plant Protection

Academic System: courses

Description Preparation Date: 22/9/2024

File Completion Date: 6/10/2024

Signature:

Head of Department Name:

Asst. Prof. Dr. Faiz Tahseen Fadhel

Date: 6/10/2024

Signature:

Scientific Associate Name:

Asst. Prof. Dr. Osama Hussein Mahedi

Date: 6/10/2024

قسم وقاية النبات
Department of Plant Protection

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Signature: Asst. Prof. Dr. Waleed Ismaal Kurdi

Date: 6/10/2024

جامعة الانبار - كلية الزراعة
شعبة ضمان الجودة والاداء الجامعي

Approval of the Dean

Prof. Dr. Idham Ali Abed

Date: 6/10/2024

Academic Program Description Form

University Name: **University of Anbar**

Faculty/Institute: **College of Agriculture**

Scientific Department: **Department of Plant Protection**

Academic or Professional Program Name: **Bachelor of Plant Protection**

Final Certificate Name: **Bachelor of Agricultural Sciences**

Academic System: Course-based system

Description Preparation Date: **2024/4/8**

Approval of the Dean

1. Program Vision

Enhancing students' academic level through curriculum development, activating applied research, and striving to introduce the latest agricultural devices and technologies in the field of plant protection. Additionally, expanding postgraduate programs and enhancing the teaching staff with various scientific specialties to achieve the highest possible quality, contributing to the elevation of the Department of Plant Protection and College of Agriculture in global rankings.

2. Program Mission

Harnessing all scientific and research capabilities, both theoretical and applied, to address the challenges facing the agricultural sector by preparing competent agricultural engineers capable of solving problems related to plant protection and combating various agricultural pests. This aims to enhance the agricultural sector and improve the quality and quantity of agricultural crops, thereby supporting the overall economy of the country.

3. Program Objectives

Providing students with knowledge of the nature and methods of diagnosing agricultural pests and combating them from an academic and professional point of view
Understand the nature of agricultural pests and their livelihood according to scientific standards
Understand the nature of direct and indirect economic damages caused by agricultural pests and how to deal with them according to correct applied scientific methods
Provide students with information on how to manage IPM programs of pests
Develop their awareness regarding dealing with chemical pesticides and how to dispose of their residues
Training students based on the summer training system in the supportive competent authorities, such as the agricultural divisions and the agricultural quarantine

4. Program Accreditation

5. Other external influences

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	12	14	20.33%	
College Requirements	23	77.5	38.98%	
Department Requirements	24	78.5	40.67%	
Summer Training	**1**			
Other				

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

7. Program Description			
Year one – Following Bologna Process			
Year/Level	**Course Code**	**Course Name**	**Credit Unites** – ECTS
First	PPD111	Biodiversity	6
First	PPD112	Principles of Animal Production	6
First	PPC113	Principles of Field Crops	6
First	PPD114	Principles of Horticulture	5
First	PPC115	Applications in Computer	3
First	PPC116	Arabic Language	2
First	UOA001	Human Rights	2
First	PPD121	Principles of Entomology	5
First	PPC122	Principles of Agricultural Economics	4
First	PPC123	Machinery & pest control equipment	5
First	PPC124	Principles of Soil Science	5
First	PPC125	Principles of Microbiology	5
First	PPC126	General Chemistry	4

First	UOA003	English Languge	2	
Years 2, 3 and 4 Following courses system				
Year/Level	**Course Code**	**Course Name**	**Credit Hours**	
			theoretical	practical
Second	**APP2201**	Principles of statistics	2	3
Second	**APP2202**	Machinery & equipment control	2	3
Second	**APP2203**	Plant taxonomy	2	3
Second	**APP1204**	Computer Science 3		3
Second	**APP2205**	Principles of animal production	2	3
Second	**APP2206**	Microbiology	2	3
Second	**APP1207**	English language 2	1	
Second	**APP1208**	The crimes of the Baath regime	1	
Second	**APP2209**	Plant physiology	2	3
Second	**APP1210**	Computer Science 4		3
Second	**APP3211**	Medical &veterinary insects	2	3
Second	**APP1212**	Arabic language	1	
Second	**APP3213**	Insects taxonomy	2	3
Second	**APP2214**	Plant nutrition	2	3
Second	**APP2215**	Analytic chemistry	2	3
Second	**APP2216**	Principles of field crops	2	3
Third	**APP3301**	Insect physiology	2	3
Third	**APP2302**	Ecology	2	3
Third	**APP2303**	Experimental design &analysis	2	3
Third	**APP3304**	Mycology 1	2	3
Third	**APP2305**	Biochemistry	2	3

Third	**APP2306**	Plant genetic	2	3
Third	**APP2307**	Agricultural extension	2	
Third	**APP2308**	Plant breeding	2	3
Third	**APP3309**	Plant pathology	2	3
Third	**APP3310**	Bee breeding	2	3
Third	**APP3311**	Mycology 2	2	3
Third	**APP3312**	Nematodes	2	3
Third	**APP2313**	Biotechnology	2	3
Third	**APP2314**	Weed & control methods	2	3
Third	**APP1315**	English language 3	1	
Fourth	**APP3401**	Field crops diseases	2	3
Fourth	**APP3402**	Biological control	2	3
Fourth	**APP3403**	Storage pests	2	3
Fourth	**APP3404**	Pesticides	2	3
Fourth	**APP3405**	Insect ecology	2	3
Fourth	**APP3406**	Diseases of vegetables & protected agriculture	2	3
Fourth	**APP3407**	Acarology	2	3
Fourth	**APP3408**	Fruit diseases	2	3
Fourth	**APP3409**	Plant virology	2	3
Fourth	**APP3410**	Field crops insects	2	3
Fourth	**APP3411**	Horticultures insects	2	3
Fourth	**APP3412**	Integrated pest management	2	3
Fourth	**APP1413**	English language 4	1	
Fourth	**APP3414**	Seminar	2	

Fourth	**APP3415**	Research project	1	

8. Expected learning outcomes of the program

Knowledge

1- Instilling values and principles in the student by emphasizing the independence of the statistician when expressing his impartial opinion

2- Emphasis on personal characteristics such as integrity, honesty, confidentiality and morals.

3 - Statement of the importance of the rules of professional conduct and its exposure to legal penalties in case of violation

4- Emphasizing the importance of combating financial and administrative corruption by the regulatory bodies

Skills

1- Determine the type of pest
2- Determining the level of economic damage
3- Determining the type, method and timing of the control
4- Integrated pest management

Ethics

1 - Through the participation of students in the lecture, based on their prior preparation of the subject.
2 - Giving them an exercise as homework and asking for it to be solved with separate papers, collected from them in the next lecture.
3- Giving the students a case study and dividing the students into groups to write a report about such study.
4- Evaluation through periodic monthly exams.

9. Teaching and Learning Strategies

1- Adopting the method of giving lectures and linking each topic with examples from the reality of the agricultural work situation
2- Giving them some simple practical exercises that are discussed by the students and solved during the lecture
With the participation of all students in the section with the professor to give the material as a kind of interaction.
3- Training students in laboratories by conducting the necessary laboratory tests for diagnosis
4- Summer training in supporting institutions such as the Directorates of Agriculture, Silos and Agricultural Quarantine

10. Evaluation methods

1 - Through the participation of students in the lecture, based on their prior preparation of the subject.

2 - Giving them an exercise as a homework and asking for it to be solved with separate papers, collected from them in the next lecture.
3- Giving the students a case study and dividing the students into groups to write a report about such study.
4- Evaluation through periodic monthly exams.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Prof.	Crop Fields	Plant Biotechnologies			√	
Prof.	Plant Protection	Pesticides			√	
Assist.Prof.	Crop Fields	Plant Genetics			√	
Assist.Prof.	Plant Protection	Fungal Toxins			√	
Assist.Prof.	Plant Protection	Biological Resistance			√	
Assist.Prof.	Plant Protection	Insects			√	
Assist.Prof.	Plant Protection	Fungi			√	
Assist.Prof.	Plant Protection	Fungi			√	

Assist.Prof.	**Crop Fields**	**Plant Genitics**			√	
Lecturer.Dr	**Plant Protection**	**Plant Pathology**			√	
Lecturer.Dr	**Plant Protection**	**Insects**			√	
Lecturer.	**Plant Protection**	**Plant Protection**			√	
Lecturer.	**Plant Protection**	**Plant Protection**			√	
Assist. Lecturer.	**Plant Protection**	**Plant Protection**			√	
Assist. Lecturer.	**Plant Protection**	**Plant Protection**			√	
Assist. Lecturer.	**Plant Protection**	**Plant Protection**			√	
Assist. Lecturer.	**Plant Protection**	**Plant Protection**			√	

Professional Development

Mentoring new faculty members

Motivating faculty members to join developmental programs and specialized courses held in the scientific department, college, or university, encouraging them to accomplish the required tasks, and preparing educational programs according to the standards required by the Ministry of Higher Education and Scientific Research. Directing them to pass the teaching methods course and the teaching competency course held at the Continuous Education Center/University Presidency.

Professional development of faculty members

Guiding instructors to join skill development courses held in the scientific department, college, or university, such as specialized courses, workshops, and seminars like Civil Defense and ISO courses, etc.

12. Acceptance Criterion

Central

13. The most important sources of information about the program

Website: *https://www.uoanbar.edu.iq/AgricultureCollege/CMS.php?ID=31*
E-mail: *plantprotection@uoanbar.edu.iq*

14. Program Development Plan

Forming committees from the faculty members holding scientific titles and those with expertise to update the curricula to align with scientific advancements for each course.

Program Skills Outline															
				Required program Learning outcomes											
Year/ Level 2024_ 2025	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First	PPD111	Biodiversity	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
First	PPD112	Principles of Animal Production	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
First	PPC113	Principles of Field Crops	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
First	PPD114	Principles of Horticulture	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
First	PPC115	Applications in Computer	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
First	PPC116	Arabic Language	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
First	UOA001	Human Rights	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
First	PPD121	Principles of Entomology	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First	PPC122	Principles of Agricultural Economics	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First	PPC123	Machinery & pest control equipment	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First	PPC124	Principles of Soil Science	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First	PPC125	Principles of Microbiology	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First	PPC126	General Chemistry	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First	UOA003	English Languge	Basic	√	√	√	√	√	√	√	√	√	√	√	√

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

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	1 - Study the most important field crops in the world. -2 - Include knowledge of the prevalence of each crop in different regions of the world. -3 - Understand the economic importance of field crops. -4 - Identify the methods of growing each crop and the factors affecting its productivity. -5 - Study the environmental conditions suitable for growing each crop.
Module Learning Outcomes	-1 - The student will be introduced to the most important field crops in Iraq and the world. -2 - The student will be able to classify crops according to their environmental needs. -3 - The student will be able to differentiate between crops and their importance in human and animal nutrition. -4 - The student will be able to understand the scientific methods used to increase crop productivity. -5 - The student will be able to evaluate the importance of each field crop and which of them is best for investment in Iraq. B - Program Skill Objectives -1 - The student will be introduced to the economic importance of crops. -2 - The student will be able to evaluate the most important field crops in Iraq and the world. -3 - The student will be taught the appropriate environmental conditions for each crop.
Indicative Contents	1 - Explanation and clarification 2 - Lecture method 3 - Student groups 4 - Practical lessons in agricultural fields 5 - Scientific trips to learn about grain crops in Iraq

Learning and Teaching Strategies

Strategies	Developing the student's ability to identify the most important field crops and their impact on environmental conditions, and to identify and know their types.

Student Workload (SWL) / 15 weeks

Structured SWL (h/sem)	138	**Structured SWL (h/w)**	9
Unstructured SWL (h/sem)	37	**Unstructured SWL (h/w)**	2
Total SWL (h/sem)	**175**		

Module Evaluation

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO 1, 2
	Assignments	2	10% (10)	2 and 12	LO 3, 4
	Projects / Lab.	1	10% (10)	Continuous	LO 1-7
	Report	1	10% (10)	13	LO 1-7
Summative assessment	Midterm Exam	1hr	10% (10)	7	All
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks		

Delivery Plan (Weekly+Lab Syllabus)

Week	Material Covered
Week 1	Introduction to field crops, their definition, origin, and development
Week 2	Classification of field crops according to families, planting season, use, etc. (description of the most
Week 3	Environmental factors and their relationship to crop growth (climatic factors)
Week 4	Light and its importance in growth
Week 5	First month exam/ Temperature and its relationship to crop distribution
Week 6	Wind and its effect on crops
Week 7	Mid-term Exam
Week 8	Distinguishing between the Poaceae and Legume families
Week 9	Soil factors (soil construction)
Week 10	soil texture, soil salinity, soil acidity
Week 11	Factors of distribution and spread of field crops
Week 12	Classification of crops according to their calorie requirements
Week 13	summer crops
Week 14	winter crops
Week 15	Crops and food security
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts		yes
Recommended Texts	Field Crop Management and Production Principles of Field Crops	Recommended books and references, scientific journals, reports
Websites	Electronic references, websites, virtual library, library websites in some international universities	

MODULE DESCRIPTION FORM
First Stage – Following Bologna Process

Principles of Field Crops

Module Information					
Module Title	**Principles of Field Crops**			**Module Delivery**	
Module Type	**C**			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☒ Practical ☒ Seminar	
Module Code	**PPC113**				
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level		**Module Level**		**Semester of Delivery**	1
Administering Department		**Field Crops Dept.**		**College**	Agricultural
Module Leader	Sinan Abdullah Abas			**e-mail**	ag.sinan.abdullah@uoanbar.edu.iq
Module Leader's Acad. Title		**Module Leader's Acad. Title**		**Module Leader's Qualification**	Ph.D.
Module Tutor	Sinan Abdullah Abas			**e-mail**	ag.sinan.abdullah@uoanbar.edu.iq
Peer Reviewer Name		**Faiz T. Fadhel**		**e-mail**	ag.faiz.tahseen@unoanbar.edu.iq
Scientific Committee Approval Date		**01/10/2024**		**Version Number**	1.0

Relation with other Modules			
Prerequisite module	none	**Semester**	-
Co-requisites module	none	**Semester**	-

Grading Scheme

Group	Grade	Marks %	Definition
Success Group (50 - 100)	**A -** Excellent	90 - 100	Outstanding Performance
	B - Very Good	80 - 89	Above average with some errors
	C - Good	70 - 79	Sound work with notable errors
	D - Satisfactory	60 - 69	Fair but with major shortcomings
	E - Sufficient	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	(45-49)	More work required but credit awarded
	F – Fail	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Principles of Animal Production

Module Information

Module Title	Principles of Animal Production	**Module Delivery**	
Module Type	**S**	☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	PPD112		
ECTS Credits	**5**		
SWL (hr/sem)	**125**		

Module Level	UGx11 1	**Semester of Delivery**	2
Administering Department	Animal Production	**College**	Agricultural
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor	Name (if available)	**e-mail**	
Peer Reviewer Name	**Faiz T. Fadhel**	**e-mail**	ag.faiz.tahseen@unoanbar.edu.iq
Scientific Committee Approval Date	01/10/2024	**Version Number**	1.0

Relation with other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	- The student will learn about the economic importance of animal products. - The student will know the types of cows, buffalo, and sheep. - The student will learn about field operations for farm animals. - The student will learn about the methods used to classify farm animals. - The student will be introduced to methods of caring for cows, buffalo, and calves. - The student will be able to identify the different types of records and field operations.
Module Learning Outcomes	- The student will learn about the economic importance of animal products. - The student will learn about the types of cows, buffalo, and sheep. - The student will learn about calf care. - The student will learn about poultry care.
Indicative Contents	- Explanation and clarification. - Lecture study method. - Student groups. - Practical lessons in the college's animal fields. - Field trips to the region. - Self-study method.

Learning and Teaching Strategies

Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining

Student Workload (SWL) / 15 weeks

Structured SWL (h/sem)	108	**Structured SWL (h/w)**	7
Unstructured SWL (h/sem)	17	**Unstructured SWL (h/w)**	1
Total SWL (h/sem)	125		

Module Evaluation

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

Week	Material Covered
Week 1	**The economic importance of animal products**
Week 2	**Types of cows, buffaloes and sheep**
Week 3	**Reproduction in cows and buffaloes**
Week 4	**Calf care**
Week 5	**Milk production in cows and buffaloes**
Week 6	**Field operations of animals on the farm and types of records on the farm**
Week 7	**Mid-term Exam**
Week 8	**farm animal housing**
Week 9	**buffalo**
Week 10	**The economic importance of sheep and goats**
Week 11	**Classification of sheep and goats**
Week 12	**Methods of classifying farm animals**
Week 13	**Reproduction in sheep and goats**
Week 14	**Field operations for sheep and goats**
Week 15	**farm animal care**
Week 16	**General review before the final exam**

Delivery Plan (Weekly Lab. Syllabus)

Week	Material Covered
Week 1	Lab 1: Identifying Farm Animals
Week 2	Lab 2: Sheep Care
Week 3	Lab 3: Cow Care
Week 4	Lab 4: Buffalo Care
Week 5	Lab 5: Goat Care
Week 6	Lab 6: Farm Animal Nutrition
Week 7	Lab 7: The most important feeds

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	1- 1- Fundamentals of Animal Production Dr. Zahri Al-Jalili Dr. Muhammad Adel Dr. Farid Al-Shahwani and Talal Youssef 2-	Yes
Recommended Texts	Dairy Cattle Production Dr. Natiq Muhammad Al-Qudsi	No
Websites	https://www.sciencedirect.com/journal/separation-and-purification-technology/vol/292/suppl/C https://www.amazon.com/Separation-Purification-Methods-Edmond-Perry/dp/082476319X	

Grading Scheme

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Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Principles of Soil Science

Module Information

Module Title	Principles of Soil Science	**Module Delivery**	
Module Type	S	☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	PPC124		
ECTS Credits	5		
SWL (hr/sem)	175		

Module Level	UGx11 1	**Semester of Delivery**	1
Administering Department	**Principles of Soil Science**	**College**	Agricultural
Module Leader	Huthaifa Jaseem Al-A'ni	**e-mail**	ag.huthaifa.jaseem@uoanbar.edu.iq
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor	Huthaifa Jaseem Al-A'ni	**e-mail**	ag.huthaifa.jaseem@uoanbar.edu.iq
Peer Reviewer Name	**Faiz T. Fadhel**	**e-mail**	ag.faiz.tahseen@unoanbar.edu.iq
Scientific Committee Approval Date	01/10/2024	**Version Number**	1.0

Relation with other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	1. Theoretical - Enabling the student to understand the formation, .1 origin, and development of soils. - Familiarizing the student with the physical, chemical, and biological properties of soils. - Familiarizing the student with some soil problems, such as salinity and alkalinity, and how to address them. 2. Enabling the student to understand how to collect soil samples from the field, prepare them for laboratory analysis, and conduct the most important basic soil analyses.
Module Learning Outcomes	Interactive lecture - Assigning group work to reveal leadership skills - Assigning tasks and reports - Brainstorming - Dialogue and discussion
Indicative Contents	Discuss the adaptations of parasites and their host specificity

Learning and Teaching Strategies

Strategies	1 - Understanding parasitology as a term and its association in different fields. 2 - Identifying the stages of development of this topic and its achievements in various fields. 3 - Identify the most important techniques used to develop the ability to accurately diagnose parasites, develop the student's ability to describe and study parasites in different environments, and identify the classification keys to reach a knowledge of the genus and type of the parasite. 4 - Linking the theoretical information that the student had previously learned in the previous stages with its practical application in the laboratory.

Student Workload (SWL) / 15 weeks

Structured SWL (h/sem)	153	**Structured SWL (h/w)**	9
Unstructured SWL (h/sem)	27	**Unstructured SWL (h/w)**	1
Total SWL (h/sem)	**150**		

Module Evaluation

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

Week	Material Covered
Week 1	Soil formation and development
Week 2	Fundamentals of Soil Science
Week 3	Physical properties of soil
Week 4	soil water
Week 5	Soil moisture content estimation
Week 6	Estimation of true density, bulk density of soil, colloids and chemical properties of soil
Week 7	Mid-term Exam
Week 8	Volumetric analysis of soil particles
Week 9	Soil salinity and alkalinity
Week 10	Preparing the saturated dough for the soil
Week 11	biological and biochemical properties of soil
Week 12	Soil fertility and plant nutrition
Week 13	Soil organic matter estimation
Week 14	Soil improvers
Week 15	**Nano-fertilizers**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus)

Week	Material Covered
Week 1	Lab 1: Making a saturated soil paste
Week 2	Lab 2: Soil Moisture Estimation
Week 3	Lab 3: Estimating the electrical conductivity of soil
Week 4	Lab 4: Estimation of Organic Matter
Week 5	Lab 5: Fertilizer Manufacturing Calculations
Week 6	Lab 6: Estimating soil biomass density
Week 7	Lab 7: Types of fertilizers

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Principles of Education Dr. Walid Al-Aqidi	No
Recommended Texts	Soil fertility and fertilization. Dr. Saadallah Al-Naim	No
Websites		

Grading Scheme

Group	Grade	Marks %	Definition
Success Group (50 - 100)	**A -** Excellent	90 - 100	Outstanding Performance
	B - Very Good	80 - 89	Above average with some errors
	C - Good	70 - 79	Sound work with notable errors
	D - Satisfactory	60 - 69	Fair but with major shortcomings
	E - Sufficient	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	(45-49)	More work required but credit awarded
	F – Fail	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Principles of agricultural economics

Module Information

Module Title	**Principles of agricultural economics**		**Module Delivery**	
Module Type	**Core**		☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	**PPC122**			
ECTS Credits	**4**			
SWL (hr/sem)	**100**			
Module Level	UGx11 1	**Semester of Delivery**	1	
Administering Department	agricultural economics Dpt.	**College**	College of Agricultural	
Module Leader	Eyid Abbas Abdalltef	**e-mail**	ag.eyid.abbas@uoanbar.edu.iq	
Module Leader's Acad. Title	Assist. Professor	**Module Leader's Qualification**	Ph.D.	
Module Tutor	Mustafa Fadhil	**e-mail**	ag.mustafa.fodhil.hamad@uoanbar.edu.iq	
Peer Reviewer Name	**Faiz T. Fadhel**	**e-mail**	ag.faiz.tahseen@unoanbar.edu.iq	
Scientific Committee Approval Date	01/10/2024	**Version Number**	1.0	

Relation with other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	1- The student learns about the concept of agricultural economics and economic activity 2- The student learns the concept of agricultural economics and agricultural technology 3- The student gets to know the costs of agricultural production and the role of the agricultural sector in the economic structure. 4- The student gets to know the concept of income and methods for calculating income and production and production functions. The student gets to know the meaning of revenue and its types. 6- The student should know supply and demand, the factors affecting them, and prices
Module Learning Outcomes	1- Knowledge of the concept of economics 2- The skill of identifying the economic problem 3- Understanding the work of the economic cycle and economic activity 4- The student learns demand theory 5- The student learns the theory of presentation 6- Understanding the elasticity of demand and supply 7- Understanding the theory of agricultural production and costs 8- Knowledge of consumer theory 9- Learn the skill of calculating costs 10- Learn the skill of calculating revenues, production theory, and production functions 11- Interpreting consumer behavior 12- Knowledge of the law of supply and demand and utility theory 13- Understanding the price mechanism for agricultural crops in the markets and distinguishing between them

Indicative Contents	Introducing the student to the principles of agricultural economics, so that this course is to learn about macro and micro economics. It consists of the vocabulary of the Principles of Economics course, including demand forecasts, supply and income, costs, markets, tracking, consumer behavior, demand and supply variables, and prices for agricultural crops. All of this vocabulary requires knowledge and skill on the part of the student to be able to pass this stage

Learning and Teaching Strategies

Strategies	The main strategy for teaching the Principles of Economics course for the first stage is based on the theoretical aspect of presenting economic concepts, theories and ideas in economics, and assigning students some tasks and duties.

Student Workload (SWL) / 15 weeks

Structured SWL (h/sem)	75	**Structured SWL (h/w)**	5
Unstructured SWL (h/sem)	25	**Unstructured SWL (h/w)**	1.7
Total SWL (h/sem)	**200**		

Module Evaluation

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	10% (10)	3 and 6 and 9 and 13	LO 1, 3, 6, 10
	Assignments	2	10% (10)	6 and 12	LO 5,10
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO 12
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO 10
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

Week	Material Covered
Week 1	The concept of agricultural economics, its branches, and its relationship with other sciences
Week 2	The concept of agriculture, agricultural technology, and the role of the agricultural sector in the economic structure
Week 3	Agricultural costs, their types and classifications
Week 4	The concept of agricultural income and income and methods of calculating local agricultural income
Week 5	The concept of production, the economics of agricultural production, and the objectives of production economics
Week 6	The theory of consumer behavior and its analysis and the concept of consumer equilibrium according to the class
Week 7	Production theory and factors of production
Week 8	Production theory, production functions, classification of production functions, and hypotheses of production funct
Week 9	The laws of production and the impact of technology on the production function and the stages of the function
Week 10	Stages of production, substitution and substitution between factors of production
Week 11	Key terms, borderline symptoms and workforce factors
Week 12	Markets concept and types
Week 13	Agricultural prices and agricultural price theories
Week 14	Demand for agricultural crops, characteristics and types of demand

Week 15	The supply of agricultural crops, the factors affecting it, and the interaction of the forces of supply and demand
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	1- Dr. Hassan Rahman Al-Musawi "Agricultural Economics" 2- Dr. Raad Idan Al-Atabi, "Agricultural Economics Theory and Practice"	No
Recommended Texts	3- Dr. Ali Jadoua Al-Sharifat and Turki Mujhem Al-Fawaz "Fundamentals of Agricultural Economics" 4- Dr. Rania Mahmoud Abdel Aziz Amara, "Principles of Economics."	No

Grading Scheme

مخطط الدرجات

Group	Grade	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	90 - 100	Outstanding Performance
	B - Very Good	80 - 89	Above average with some errors
	C - Good	70 - 79	Sound work with notable errors
	D - Satisfactory	60 - 69	Fair but with major shortcomings
	E - Sufficient	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	(45-49)	More work required but credit awarded
	F – Fail	(0-44)	Considerable amount of work required

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Principles of Microbiology

Module Information

معلومات المادة الدراسية

Module Title	Principles of Microbiology	**Module Delivery**	
Module Type	**Basic**	☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	PPC125		
ECTS Credits	5		
SWL (hr/sem)	150		

Module Level	The first stage	**Semester of Delivery**	
Administering Department	Food Sciences Dept.	**College**	Agriculture
Module Leader	Ali Ameen Yaseen	**e-mail**	ag.ali.ameen@uoanbar.edu.iq
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	not available	**e-mail**	
Peer Reviewer Name	**Faiz T. Fadhel**	**e-mail**	ag.faiz.tahseen@unoanbar.edu.iq
Scientific Committee Approval Date	6/10/2024	**Version Number**	1

Relation with other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	1- The student learns about microorganisms, their scientific field, and pure and applied science. It introduces microorganisms in the taxonomy of living beings and briefly covers microbiology's history. 2- Students learn about viruses, bacteria, algae, fungus, slime molds, and protozoa, their life needs, and the best circumstances for their development and reproduction. 3- Studying the cellular structures of microorganisms and identifying the role of these structures in cell growth and reproduction 4- Enable the student to obtain knowledge of methods of controlling the growth and reproduction of microorganisms. And the extent of the impact of these methods on the structures of living cells 5- Enabling pupils to comprehend genetic architecture and how to communicate genetic information through induction, transmission, and transduction.
Module Learning Outcomes	1- Educating the student with different kinds of microorganisms 2- Educating the pupil with the classification of microorganisms 3- Providing the student with the microbiological departments 4- Getting to know the student with the physiological and nutritive requirements of microorganisms 5- Educating the learner with the many types of growth environments colonized by microorganisms and the best circumstances for their survival. 6- Providing the learner with the phases of microbial proliferation and the processes of sexual and asexual reproduction 7- Providing the learner with the mechanisms of genetic trait transmission and methods for microbial control
Indicative Contents	Instructional content includes the following. **Introduction to Microbiology** Part A – Principle of Microbiology: - Definition of Microbiology, its division and study of the units of each of these sections, the role of microorganisms in this field, and the different types in which they are used this field. - What are microorganisms, what is their role in nature, and what is their position in relation to other organisms? How do classification constitutions deal with microorganisms? What is the scientific name, how is it written, and what is its benefit in classifying and studying microorganisms - Where is its importance for humans and animals, and what is the relationship that connects its members to each other. - What is the difference between prokaryotic and eukaryotic cells, and to which division do microorganisms belong? What is the role of the components of cellular components in the life cycle of a microscopic organism? Chromosomes, cytoplasmic membrane, ribosomes, cell wall, outer membranes, the role of the outer layers in protecting bacteria and causing infectious infections or symptoms of bacterial poisoning. - Classifying fungus into molds and yeasts based on their structural characteristics, external morphology, reproductive methods, and the impact of molds on humans, animals, and plants, whether beneficial or detrimental. What are the feeding ways of

	fungi and yeasts, their cultivation techniques, and the circumstances required for their development. - Many chemical and physical approaches exist for controlling microorganisms growth, each with advantages and disadvantages. However, high-heat methods such sterilization and pasteurization are most used globally. Medical laboratories, hospitals, and research facilities utilize alcohol, detergents, sterilizers, and UV radiation to fight microorganisms. - New microbial varieties that are more effective or prolific than the natural forms are developed through genetic engineering. This needs us to first comprehend the cell's genetic material, whether DNA or RNA, its makeup, and its role in passing on genetic traits from parents to offspring. The transmission of genetic traits between microbes can be done by transduction, induction, or transduction, but under certain conditions. Laboratory skills: Laboratory technician skills refer to the ability to deal with the contents of microbiology laboratories, identify every device or equipment present in the laboratory, and adapt to the microbial laboratory environment, in addition to carrying out specialized tasks in the laboratory environment, such as cleaning, sterilization, and keeping records for the purpose of returning to them when needed. As well as enhancing the skills of the laboratory technician to the ability to isolate, purify and diagnose microorganisms and study their physical and chemical properties and methods of processing them. Differential staining is performed for each type of these microbes
Learning and Teaching Strategies	
Strategies	Teaching strategies used in general biology and their expected results in terms of knowledge acquisition and achievement The learning outcomes for the student were as follows: 1. Competitive learning • The student works individually. • The student has common educational goals and tasks. 2. Individual learning • The student works individually and independently to achieve various unrelated individual educational goals and tasks with other students. 3 Joint learning • The student works in small groups. • Within the group, the students shared learning goals and tasks that may be similar to or different from each other. • The lucturer assesses the students' group work as well as their individual work.

Student Workload (SWL)			
Structured SWL (h/sem)	109	**Structured SWL (h/w)**	109/15= 7
Unstructured SWL (h/sem)	91	**Unstructured SWL (h/w)**	91/15= 6
Total SWL (h/sem)	**200**		

Module Evaluation

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	10% (10)	4,7 and 10	LO #1, #2 and #10, #11
	Assignments & H.W.	3	10% (10)	5,8 and 11	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

Week	Material Covered
Week 1	Introduction to microbiology, The location of microorganisms among living organisms
Week 2	Characteristics of microorganisms
Week 3	Defining bacteria, their shapes, and identifying their internal and external structures and functions
Week 4	Growth and reproduction of bacteria. Bacterial life cycle and growth phases, learning about the
Week 5	First semester exam
Week 6	Molds definition, composition, external appearance, types of molds, their developmental properties,
Week 7	Algae: their definition, cellular structure, and learning about their characteristics and types.
Week 8	Protoctista, its definition, cellular structure, types, and methods of nutrition and reproduction.
Week 9	Methods and techniques for controlling microbes I
Week 10	Methods and techniques for controlling microbes II
Week 11	Microbial genetic material
Week 12	Microbial genetics and genetic engineering
Week 13	Sources of microbial pollution (soil, food, water, air)
Week 14	Water Microbiology
Week 15	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

Week	Material Covered
Week 1	Lab 1: Biological safety and laboratory recommendations
Week 2	Lab 2: Microbial culture media and steps for preparing and sterilizing them
Week 3	Lab 3: Pigmentation and its types ,simple stain, Gram stain for bacteria
Week 4	Lab 4: Microbial counting methods , Direct and indirect counting
Week 5	Lab 5: Growing molds and yeasts and detecting them using an optical microscope
Week 6	Lab 6: Water check
Week 7	Lab 7: standard plate count

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	العاني، فائز عبد العزيز, بدوي، أمين سليمان ، 2000، مباديء الأحياء المجهرية الطبعة 3 ، وزارة التعليم العالي و البحث العلمي- جامعة الموصل- العراق - Allen, K. G. (1974). Fundamentals of microbiology. WB Saunders Company. - Parker, N., Schneegurt, M., Tu, A. H. T., Lister, P., & Forster, B. M. (2021). Microbiology. - Green, L. H., & Goldman, E. (Eds.). (2021). Practical handbook of microbiology. CRC press.	No
Recommended Texts	-Glazer, A. N., & Nikaido, H. (2007). Microbial biotechnology: fundamentals of applied microbiology. Cambridge University Press.	No
Websites	https://ocw.mit.edu/courses/20-106j-systems-microbiology-fall-2006/pages/lecture-notes/	

Grading Scheme

Group	Grade		Marks %	Definition
Success Group (50 - 100)	**A -** Excellent		90 - 100	Outstanding Performance
	B - Very Good		80 - 89	Above average with some errors
	C - Good		70 - 79	Sound work with notable errors
	D - Satisfactory		60 - 69	Fair but with major shortcomings
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