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

Plant Protection Department

Misan University
Faculty of Agriculture

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.

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: Misan University

Faculty/Institute: College of Agriculture

Scientific Department: Department of Plant Protection

Academic or Professional Program Name: Bachelor of Science in Agriculture

Final Certificate Name: Bachelor of Science in Agriculture / plant protection

Academic System: Courses

Description Preparation Date:

File Completion Date:

Signature:

Head of Department Name:
Dr. Farhan Jasim Mohammed

Date:

Signature:

Scientific Associate Name:

Date: 4/8/2024

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 4/8/2024

Signature:

Approval of the Dean

4/8/2024

1.	**Program Vision**
Raising the scientific level of students by activating the practical, applied aspect and striving to introduce the latest agricultural equipment and techniques in the field of plant protection to achieve comprehensive quality that contributes to raising the position of the department and college in international classifications.	

2.	**Program Mission**
Confronting the challenges facing the agricultural sector by working to prepare and graduate competent agricultural engineers who have the ability to solve problems related to plant protection and agricultural pest control to support the labor market and community service.	

3.	**Program Objectives**
1- Preparing highly skilled engineers in the field of plant protection. 2- Contributing to developing methods for preserving agricultural products. 3- Qualifying students to establish profitable projects to contribute to improving the national economy.	

4.	**Program Accreditation**
The department seeks to obtain program accreditation.	

5.	**Other external influences**
Government support.	

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	6	14	10%	Basic
College Requirements	11	31	21%	Basic
Department Requirements	37	105	69%	Basic
Summer Training		Complete		Basic
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
1st Year/ 1st course	HORT111	Horticulture	2	3
	ENTO112	1 Entomology	2	3
	AGRE100	Agricultural Economy	2	3
	ZOOL113	Zoology	2	3
	MATH101	Mathematics	2	–
	HUMR102	Human Rights	1	–
	COMA103	Computer Applications 1	–	2
1st Year/ 2ed course	ENTM114	2 Entomology	2	3
	ORGC104	Organic Chemistry	2	3
	PRSS115	Principles of Soil Science	2	3
	GENB116	General Botany	2	3
	ENGL105	English Language 1	2	–
	ARAL106	Arabic Language	2	–
	FRED107	Freedom and Democracy	1	–
2nd Year/ 1st course	PLAP211	Plant Physiology	2	3
	PLAT212	Plant Taxonomy	2	3

	AGRE200	Agricultural Extension	**2**	–
	MICR213	Microbiology	**2**	**3**
	PRIS201	Principles of Statistics	**2**	**3**
	AGRM214	Agriculture Machinery	**2**	**3**
	PRAP202	Principles of Animal Production	**2**	**3**
	COMA203	Computer Applications 3	–	**2**
	CRBP204	Crimes of Baath Party	**2**	–
2nd Year/ 2nd course	PLAN215	Plant Nutrition	**2**	**3**
	INST216	Insect Taxonomy	**2**	**3**
	PRFC217	Principles of Field Crops	**2**	**3**
	MEVI218	Medical and Veterinary Insects	**2**	**3**
	ANAC205	Analytical Chemistry	**2**	**3**
	COMA206	Computer Applications 4	–	**2**
	ENGL207	English Language 2	**1**	–
3rd Year/ 1st course	BIOC300	Biochemistry	**2**	**3**
	GENE311	Genetics	**2**	**3**
	DEAE301	Design and Analysis of Experiments	**2**	**3**
	MYCO312	Mycology 1	**2**	**3**
	INSP313	Insect Physiology	**2**	**3**
	ENVS314	Environmental Science	**2**	**3**
	ENGL302	English Language 3	**1**	–
3rd Year/ 2nd course	PLAB315	Plant Breeding	**2**	**3**
	WECM316	Weeds and Control Methods	**2**	**3**
	PLAP317	Plant Pathology	**2**	**3**
	MYCO318	Mycology 2	**2**	**3**
	APIC319	Apiculture	**2**	**3**
	NEMA320	Nematology	**2**	**3**

	BIOT321	Biotechnology	**2**	**3**
4th Year/ 1st course	ORCI411	Orchard Insects	**2**	**3**
	PEST412	Pesticides	**2**	**3**
	INSE413	Insect Ecology	**2**	**3**
	STOP414	Storage Pests	**2**	**3**
	VEGD415	Vegetable and Greenhouses Diseases	**2**	**3**
	BIOC416	Biological Control	**2**	**3**
	SEMI400	Seminars	**1**	–
	ENGL401	English Language 4	**1**	–
	RESP402	1 Research Project	–	**3**
4th Year/ 2nd course	FRUD417	Fruit Diseases	**2**	**3**
	PLAV418	Plant Virology	**2**	**3**
	FICI419	Field Crop Insects	**2**	**3**
	AGRM420	Agricultural Mites	**2**	**3**
	FICD421	Field Crop Diseases	**2**	**3**
	INPM422	Integrated Pest Management	**2**	–
	RESP403	2 Research Project	–	**3**

8. Expected learning outcomes of the program

Knowledge

A-1- Providing students with knowledge about the management methods adopted in various plant protection projects, in addition to alternatives to these methods, to ensure keeping pace with global developments in technologies and meeting the needs of the labor market.

A-2- Teaching students the theoretical and practical foundations for diagnosing pests that affect plants, and ways to reduce their economic damage.

A-3- Teach students the exact standards and understand the actual needs for chemical pesticides and other pest control methods, with the aim of ensuring plant safety and achieving maximum productivity.

A-4- Guiding and teaching students regarding educational and behavioral aspects, with the aim of forming graduates who carry the principles of noble values and correct professional ethics.

Skills

B-1- Providing practical opportunities to enhance practical skills and build expertise in the field context of agricultural crop protection projects.

B-2- Teaching students to use a variety of laboratory equipment, with the aim of enhancing their skills in applying scientific techniques in managing crop protection projects.

B-3- Paying attention to training students on communication strategies to transfer new information in the field of specialization, with the aim of improving the development of knowledge and skills, and improving methods of transferring information to the team participating in the management of pests that affect plants, by teaching them how to formulate and present presentations.

B-4- Teaching students how to complete the scientific research stage by applying the foundations of the scientific method in research, and qualifying them to integrate into research and development centers, or to complete their higher degrees in the future.

Ethics

C-1- The academic program adopts the values of education in dealing with students to develop the desire and interaction in seeking knowledge and striving to spread scientific interest in society, through diligence and commitment in performing tasks.

C-2- The academic program is based on enhancing ambition among students to achieve achievement and excellence, and enhancing their self-confidence and their potential capabilities, while emphasizing the urgent need in society to exploit these human capabilities in the process of construction and development.

C-3- Focus on the importance of achieving fair competition in promoting the development and prosperity of projects, and opening the arena of opportunities for those who show determination and honesty in their work, and win markets for their products by adhering to quality.

C-4 - The academic program adopts enhancing the importance of every individual's participation in society, and not relying completely on the efforts of others to avoid the emergence of a group of insiders in the group, who hide behind the achievements of diligent and creative people.

9. Teaching and Learning Strategies

1. Several methods are used to convey information to students, including lectures using a whiteboard and data projector, interactive lectures, and educational video presentations that allow them to see field or laboratory operations.

2. Students' interaction in obtaining information includes their request to submit scientific reports on specific activities in the curriculum, which contributes to expanding their knowledge and training them on how to access information to stay up to date with knowledge in the future.

3. It includes training students to discuss logically to reach conclusions, in addition

to teaching them how to make appropriate inferences.

4. It includes learning through practical field applications, providing students with the opportunity to apply the concepts they have learned on the ground.

5. Students are trained on proper behavior inside the classroom, in laboratories, or in greenhouses, to ensure appropriate behavior within the educational institution and after graduation.

10. Evaluation methods

1. Monthly exams.
2. Daily exams.
3. Practical exams.
4. The final exam, both theoretical and practical.
5. Evaluation through summer training in government departments.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Prof.	Plant protection	Plant diseases			2	
Prof Assistant	Plant protection	Plant diseases			1	
Prof Assistant	Plant protection	Nematode			1	
Prof Assistant	Plant protection	Entomology			1	

Prof Assistant	Biology	Skin fungi			1	
Prof Assistant	Field crops	Field crops			1	
Prof Assistant	Machinery and equipment	Pullers and powers			1	
Lecturer	Plant protection	Entomology			1	
Lecturer	Biology	Botany			1	
Lecturer	Agricultural economy	Agricultural economy			1	
Lecturer	Soil science	Soil science			1	
Lecturer Assistant	Plant protection	Plant diseases			3	
Lecturer Assistant	Plant protection	Entomology			3	
Lecturer Assistant	Horticulture	Horticulture			1	
Lecturer Assistant	Field crops	Field crops			2	

Professional Development

Mentoring new faculty members

Enhancing the development of new and full-time faculty members by encouraging them to participate in training courses, attend seminars, conferences, and panel discussions, conduct lessons, and conduct research in their field of specialization, which contributes to raising the level of their education and integrating them effectively into the core teaching programs.

Professional development of faculty members

Promoting the administrative, professional and academic development of faculty members by enhancing the effectiveness and activity of group work, and developing decision-making skills in academic and administrative work, including introducing them to teaching development courses and enhancing English language and computer use skills.

12. **Acceptance Criterion**
Central admission.

13. **The most important sources of information about the program**
1. The website of the College of Agriculture and the University of Maysan.
2. Misan University Guide.
3. Central Library.
4. The most important books and sources for the plant protection department.
5. The Internet.

14. Program Development Plan
1. Encouraging students, especially the top ones in scientific departments, to study abroad, especially in developed countries.
2. Strengthening cooperation between Arab universities and international universities by sending faculty members to international universities.

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
1st level/ 1st course	HORT111	Horticulture	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ENTO112	1 Entomology	Basic	*	*	*	*	*	*	*	*	*	*		*
	AGRE100	Agricultural Economy	Basic	*	*	*	*	*	*	*	*	*	*	*	
	ZOOL113	Zoology	Basic	*	*	*	*	*	*	*	*		*	*	*
	MATH101	Mathematics	Basic	*	*	*	*	*	*		*	*	*	*	*
	HUMR102	Human Rights	Basic	*	*	*	*	*	*	*	*	*		*	*
	COMA103	Computer Applications 1	Basic	*	*	*	*	*	*	*	*	*	*	*	*
1st level/ 2nd course	ENTM114	2 Entomology	Basic	*	*	*	*	*	*	*	*	*	*		*
	ORGC104	Organic Chemistry	Basic	*	*	*	*	*	*		*	*	*	*	*

	PRSS115	Principles of Soil Science	**Basic**	*	*	*	*	*	*	*	*		*	*	*
	GENB116	General Botany	**Basic**	*	*	*	*	*	*	*	*	*	*	*	
	ENGL105	English Language 1	**Basic**	*	*	*	*	*	*		*	*	*	*	*
	ARAL106	Arabic Language	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	FRED107	Freedom and Democracy	**Basic**	*	*	*	*	*	*	*	*	*		*	*
2nd level/ 1st course	PLAP211	Plant Physiology	**Basic**	*	*	*	*	*	*	*	*	*	*	*	
	PLAT212	Plant Taxonomy	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	AGRE200	Agricultural Extension	**Basic**	*	*	*	*	*	*	*	*		*	*	*
	MICR213	Microbiology	**Basic**	*	*	*	*	*	*		*	*	*		*
	PRIS201	Principles of Statistics	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	AGRM214	Agriculture Machinery	**Basic**	*	*	*	*	*	*	*	*	*		*	*
	PRAP202	Principles of Animal	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*

		Production													
	COMA203	Computer Applications 3	**Basic**	*	*	*	*	*	*	*	*	*	*		*
	CRBP204	Crimes of Baath Party	**Basic**	*	*	*	*	*	*	*		*	*	*	*
2nd level/ 2nd course	PLAN215	Plant Nutrition	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	INST216	Insect Taxonomy	**Basic**	*	*	*	*	*	*		*	*	*		
	PRFC217	Principles of Field Crops	**Basic**	*	*	*	*	*	*	*	*		*	*	*
	MEVI218	Medical and Veterinary Insects	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	ANAC205	Analytical Chemistry	**Basic**	*	*	*	*	*	*	*	*	*		*	*
	COMA206	Computer Applications 4	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	ENGL207	English Language 2	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
3rd level/ 1st course	BIOC300	Biochemistry	**Basic**	*	*	*	*	*	*	*	*	*	*		*
	GENE311	Genetics	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	DEAE301	Design and Analysis of Experiments	**Basic**	*	*	*	*	*	*	*	*	*		*	*

	MYCO312	Mycology 1	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	INSP313	Insect Physiology	**Basic**	*	*	*	*	*	*	*	*	*		*	*
	ECOL314	Ecology	**Basic**	*	*	*	*	*	*	*	*	*	*		*
	ENGL302	English Language 3	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
3rd level/ 2nd course	PLAB315	Plant Breeding	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	WECM316	Weeds and Control Methods	**Basic**	*	*	*	*	*	*	*	*	*		*	*
	PLAP317	Plant Pathology	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	MYCO318	Mycology 2	**Basic**	*	*	*	*	*	*	*	*	*	*		*
	APIC319	Apiculture	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	NEMA320	Nematology	**Basic**	*	*	*	*	*	*	*	*	*	*		
	BIOT321	Biotechnology	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
4th level/ 1st course	ORCI411	Orchard Insects	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	PEST412	Pesticides	**Basic**	*	*	*	*	*	*	*	*	*			*
	INSE413	Insect Ecology	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*

	STOP414	Storage Pests	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	VEGD415	Vegetable and Greenhouses Diseases	**Basic**	*	*	*	*	*	*	*	*	*	*		*
	BIOC416	Biological Control	**Basic**	*	*	*	*	*	*	*	*		*	*	*
	SEMI400	Seminars	**Basic**	*	*	*	*	*		*	*	*	*		*
	ENGL401	English Language 4	**Basic**	*	*	*	*	*	*	*	*	*		*	*
	RESP402	Research 1 Project	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
4th level/ 2nd course	FRUD417	Fruit Diseases	**Basic**	*	*	*	*	*	*		*	*	*		*
	PLAV418	Plant Virology	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	FICI419	Field Crop Insects	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	AGRM420	Agricultural Mites	**Basic**	*	*	*	*		*	*	*		*	*	*
	FICD421	Field Crop Diseases	**Basic**	*	*	*	*	*	*	*	*	*	*		*
	INPM422	Integrated Pest Management	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*
	RESP403	Research 2 Project	**Basic**	*	*	*	*	*	*	*	*	*	*	*	*

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

First Stage

Course Description Form

1. Course Name:					
General Botany					
2. Course Code:					
GENB116					
3. Semester / Year:					
Second semester / 2023 - 2024					
4. Description Preparation Date:					
1. 2.2024					
5. Forms of Attendance:					
Full time (theoretical lecture/practical lecture)					
6. Number of Studying Hours (Total) / Number of Units (Total)					
75 / 5					
7. Course Administrator's Name (mention all, if more than one name)					
Name: Karrar Akram Kamil	**Email: karar.akram@uomisan.edu.iq**				
8. Course Objectives					
Course Objectives	**1- Introducing the student to the concept of botany - the branches of botany.** **2- Study of the plant cell and its living and non-living components.** **3- Study of plant tissues.** **4- Identify the principles of plant morphology.**				
9. Teaching and Learning Strategies					
Strategies	**1. Theoretical lectures, and the use of textbooks book and PowerPoint.** **2. Assigning students to prepare presentations on topics related to the curriculum.** **3. Field visits and scientific trips.**				
10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**method Learning**	**Evaluation method**
1	**5**	**Students learned about: theories of the emergence of life on Earth and the location of plants during the history of the evolution of life. Introduction to botany and its most important branches.**	**Introduction to the origin of the Earth and life on Earth.**	**Using the lecture method and displaying data on the Data Show device**	**Questions and discussion**
2	**5**	**Students learned**	**The cell**	**Using the lecture**	**Quiz test at**

		about: The cell: Prokaryotes and Eukaryotes		**method and displaying data on the Data Show device**	**the end of the lecture**
3	**5**	**Students learned about: The living components of the plant cell.**	**The plant cell**	**Using the lecture method and displaying data on the Data Show device**	**Quiz test at the end of the lecture**
4	**5**	**Non-living components of a plant cell. Learn to use an optical microscope and prepare a microscope slide**	**Climatic environmental factors**	**Using the lecture method and displaying data on the Data Show device Conduct a laboratory experiment to examine a plant cell.**	**Closing questions and discussion Preparing a scientific report on examining the cell wall and plant cells.**
5	**5**	**Students learned about: types of cell division. Stages of normal and meiotic division**	**cell division**	**Using the lecture method and displaying data on the Data Show device Assignment: A video clip about normal division and the cell cycle.**	**Quiz test at the end of the lecture Provide a report on cell division in English and Arabic.**
6	**5**	**<u>First month exam.</u> Students learned about: the components of the seed. The process of germination and aerial and ground germination.**	**Seeds and germination**	**Using the lecture method and displaying data on the Data Show device Conduct a practical experiment on aerial and ground germination**	**Quiz test at the end of the lecture Submitting a report on the aerial and ground germination experience.**
7	**5**	**Students learned about: types of plant roots, ground and aerial stems, and transformations.**	**Plant Morphology: Root and stem**	**Using the lecture method and displaying data on the Data Show device**	**Questions and discussion**
8	**5**	**First month exam. Students learned about: identifying types of plant leaves and leaf modifications.**	**Plant Morphology: Leaves**	**Using the lecture method and displaying data on the Data Show device**	**Quiz test at the end of the lecture**

9	**5**	**Students learned about: the components of a flower and the flower rings.**	**Plant Morphology: Flowers**	**Using the lecture method and displaying data on the Data Show device**	**Closing questions and discussion**
10	**5**	**Students learned about: types of flowering inflorescences.**	**Plant Morphology: inflorescences**	**Using the lecture method and displaying data on the Data Show device**	**Quiz test at the end of the lecture**
11	**5**	**Students learn about: parts of the fruit and types of fruits.**	**Plant Morphology: fruits**	**Using the lecture method and displaying data on the Data Show device**	**Questions and discussion**
12	**5**	**Students learned about: The differences between monocotyledonous and dicotyledonous plants.**	**Monocot and dicotyledonous plants**	**Using the lecture method and displaying data on the Data Show device Conducting a field visit to study the differences between monocotyledonous and dicotyledonous plants.**	**Questions and discussion**
13	**5**	**<u>Second month exam</u> Students learned about: types of plant tissues. Study of meristematic tissue.**	**plant tissues.**	**Using the lecture method and displaying data on the Data Show device**	**Questions and discussion**
14	**5**	**Students learned about: types of plant tissues. Study of permanent tissues.**	**plant tissues.**	**Using the lecture method and displaying data on the Data Show device**	**Questions and discussion**
15	**5**	**Providing students with the skills of preparing presentations and speaking in front of an audience.**	**presentations**	**Providing presentations by students using a data show device on botany topics.**	**Student discussion after presenting the presentation Test (coz) at the end of the presentation for students.**
11. Course Evaluation					

<u>The theoretical part, average for the first and second months (30) marks:</u> **The first month: a written exam (25 marks) + Quiz exams (5 marks).** **The second month: written exam (25 marks) + presentations (5 marks).** **<u>Practical part: Average of the first and second months (20) marks:</u>** **The first month: written exam (10 marks) + cell division report (5 marks) + Quiz exams (5 marks).** **The second month: a written exam (10) marks + a report of germination experiment (5) marks + Quiz exams (5 marks).**

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**-**
Main references (sources)	**Fundamentals of Botany** **Dr.. Mahmoud Muhammad Jabr et al. 2009**
Recommended books and references (scientific journals, reports...)	**1- Theoretical Botany - published by the Ministry of Technical Education and Vocational Training - Republic of Yemen.** **1- Practical Botany - published by the Ministry of Technical Education and Vocational Training - Republic of Yemen.**
Electronic References, Websites	**https://www.youtube.com/watch?v=SI418f2RonU** **https://www.youtube.com/watch?v=ilHgNugsyak** **https://www.youtube.com/watch?v=CHEvrUA7ky4** **https://www.youtube.com/watch?v=s6vg0ZCVPIk** **https://youtu.be/C6hn3sA0ip0?si=9l9yRMYxOjA8t-hB**

Course Description Form

1. Course Name:		
Principles of Soil Science		
2. Course Code:		
PRSS115		
3. Semester / Year:		
Second semester / 2023 - 2024		
4. Description Preparation Date:		
2024 / 04/ 13		
5. Forms of Attendance:		
Full time (theoretical lecture/practical lecture)		
6. Number of Studying Hours (Total) / Number of Units (Total)		
75 / 5		
7. Course Administrator's Name (mention all, if more than one name)		
Name: Haider Khalaf Muhammad	**Email:** hayder.khalaf@uomisan.edu.iq	
8. Course Objectives		
Course Objectives	**• Giving the student a basic idea of soil science concepts. • Understanding soil and getting to the basics by looking at the biophysical system of the Earth's crust with all its relationships and the role of processes in nature such as the water cycle and energy exchange. • Clarifying the relationships between soil science and other basic sciences. • Understanding the purpose of studying the course: familiarizing yourself with most laboratory equipment and knowing how they work.**	
9. Teaching and Learning Strategies		
Strategies	**Theoretical lectures, and the use of textbooks book and PowerPoint.**	

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	method Learning	Evaluation method
1	5		General definitions and concepts of soil	Word Pdf Video	Conducting weekly tests
2	5		Soil sciences	Word Pdf Video	Conducting weekly tests

3	5		Origin and development of soil	Word Pdf Video	Conducting weekly tests
4	5		Soil Physical Properties	Word Pdf Video	Conducting weekly tests
5	5		Soil Water	Word Pdf Video	Conducting weekly tests
6	5		Colloids and soil chemical properties	Word Pdf Video	Conducting weekly tests
7	5		Soil salinity and Alkalinity	Word Pdf Video	Conducting weekly tests
8	5		Exam	Word Pdf Video	Conducting weekly tests
9	5		Reclamation of lands affected by salts and management of reclaimed soils	Word Pdf Video	Conducting weekly tests
10	5		Biological and Biochemical properties of soil	Word Pdf Video	Conducting weekly tests
11	5		Soil fertility	Word Pdf Video	Conducting weekly tests
12	5		Plant nutrition	Word Pdf Video	Conducting weekly tests
13	5		Classification and management of soils in Iraq	Word Pdf Video	Conducting weekly tests

14	**5**		General Review	**Word Pdf Video**	**Conducting weekly tests**
15	**5**		**Exam**	**Word Pdf Video**	**Conducting weekly tests**

11. Course Evaluation

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**1. Principles of soil science / Dr. Abdullah Najm Al-Ani (1980). 2. Practical soil principles / M.M. Munther Majed Taj Al-Din, M.M. Imad Bashir Yacoub (1988).**
Main references (sources)	**1. Fertilization and soil fertility / Dr. Kazem Mashhout Awad (1987). 2. Basics of soil science / Dr. Abdel Fattah Al-Ani (1984). 3. Land reclamation / Dr. Ahmed Haider Al-Zubaidi (1993). 4. Soil management in planning and land use / Dr. Muhammad Khudair Abbas (1999).**
Recommended books and references (scientific journals, reports...)	**Iraqi Agriculture Journal - Soil Sciences and Mechanization**
Electronic References, Websites	

Course Description Form

1. Course Name:	
1 Entomology	
2. Course Code:	
ENTO112	
3. Semester / Year:	
Courses	
4. Description Preparation Date:	
5. Forms of Attendance:	
Attendance only	
6. Number of Studying Hours (Total) / Number of Units (Total)	
75 hours / 5 Units	
7. Course Administrator's Name (mention all, if more than one name)	
Asist.Lecture Name: Fatima.kassem.Hamdan	**Email: fatima.kassem@uomisan.edu.iq**
8. Course Objectives	
Course Objectives	- **The student's knowledge of entomology and its relationship with other sciences, including anatomy, physiology, taxonomy, and ecology** - **Identify the most prominent characteristics of the arthropod phylum.** - **The student gets to know the classes in the Arthropods division and the features of each class in detail, and makes a comparison between these classes with the insects class.** - **- Students learned about the important factors that helped distribute and spread insects.** - **Study the success of insects and the factors leading to this.** - **Identify the external appearance of insects with the most important benefits of the external body wall.** - **The student knows the body parts of insects.** - **The student learned about the first part of the insect body, which is the head, mentioning all the details of the head, including the sutures and mouth parts.** - **Study and identify the appendages of the head, which are the antennae and parts of the mouth, along with the changes that occur in the antennae and parts of the mouth.** - **The student's knowledge of the thorax region in insects and all its sections, and knowledge of the appendages of the thorax, including the legs and their modifications, the wings, and their veins.** - **Abdominal recognition in insects with posterior appendages.**

	- **The student distinguishes between reproduction and growth and the multiple forms of reproduction in insects.** - **- The student's knowledge of the shape of the egg, its components, and the different shapes of different species of insects, sperm, and their components.** - **- The student will know how the moulting process occurs in metamorphosis, the types of metamorphosis in insects, and the difference between a nymph and a larva.**
9. Teaching and Learning Strategies	
Strategies	- **Assigning students to conduct reports and research on topics related to the curriculum.** - **Bringing insects to the laboratory for the purpose of knowing the body parts of the head, thorax, abdomen, leg parts, wing veins, and the modification that occur in the appendages of the thorax and head.** - **Theoretical lectures and the use of PowerPoint and video clips.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	method Learning	Evaluation method
1	5	Students learned about entomology and the relationship of entomology to other sciences	Introduction to entomology	Using the lecture method and using the Data show device to display data	Coz test at the end of the lecture
2	5	Students learned about the taxonomic catagory, division of the animal kingdom, and the phylum of the animal kingdom	Identification of the animal kingdom and taxonomic position of insects	Using the lecture method and using the Data show device to display data	Questions and closing discussion
3	5	Students learn about the phylum Arthropoda	Classification of the phylum Arthropoda	Using the lecture method and using the Data show device to display data	coz test at the end of the lecture
4	5	Students learned about the class of insects and the most prominent characteristics of this class	Features of insect class with insect distribution and spread	Using the lecture method and using the Data show device to display data	Questions and closing discussion
5	5	Students learned about the factors that lead to the success and distribution of insects	Insect distribution and spread	Using the lecture method and using the Data show device for the purpose of data with videos of different types of insects	Coz test at the end of the lecture
6	5	Students learned about the external morphology of the insect body	Insect appearance and external body wall with body wall layers	Using the lecture method and using the Data show device to display data	Questions and closing discussion

7	**5**	**Students learned about the parts of the insect body, including the head, thorax, and abdomen**	**Insect body parts (head, thorax, and (abdomen**	**Using the lecture method and using the Data show device to display data**	**Questions and closing discussion**
8	**5**	**Students learned about the sutures of the head, the positions of the head in relation to the body axis, and the appendages of the head, such as the antennae and parts of the .mouth**	**Head in insects**	**Using the lecture method and using the Data show device to display data**	**Questions and closing discussion**
9	**5**	**Students learned about the second region, the thorax region, and the structure of the thorax region in winged and non-winged insects**	**The thorax, the tergum and its sections, the sternum, the lateral pleuron, and the appendages of the thorax**	**Using the lecture method and using the Data show device to display data**	**Coz test at the end of the lecture**
10	**5**	**Students learned about the legs and wings of insects**	**Legs and modifications of legs, wings and their modifications**	**Using the lecture method and using the Data show device to display data**	**Coz test at the end of the lecture**
11	**5**	**Students learn about the abdomen**	**Abdomen and abdominal appendages**	**Using the lecture method and using the Data show device to display data**	**Coz test at the end of the lecture**
12	**5**	**Students learned about reproduction and growth in insects**	**Forms of reproduction and growth in insects**	**Using the lecture method and using the Data show device to display data**	**Coz test at the end of the lecture**
13	**5**	**Students learned about the egg and sperm in insects, the shapes of the egg, and the components of the sperm**	**Egg, sperm, mating, and hatching**	**Using the lecture method and using the Data show device to display data**	**Coz test at the end of the lecture**
14	**5**	**Students learned about the species of metamorphosis in insects**	**Metamorphosis and its types**	**Using the lecture method and using the Data show device to display data**	**Coz test at the end of the lecture**
15	**5**	**Students learned about the mechanism of molting**	**Ecdysis**	**Requesting students to provide presentations using a data show device.**	**Questions and closing discussion**

11. Course Evaluation

Distribution of the grade out of 50 according to the tasks assigned to the student, such as homework, .daily, oral, monthly, written exams, reports, etc

Theoretical part: Average of the first and second months (30) marks:

The first month: written exam (25) marks + exams and absences (5) marks.

The second month: written exam (25 marks) + presentations (5 marks).

Practical part: average for the first and second months (20) marks:

The first month: a written exam (10) marks + marks and absences exams (5) marks + bringing insects to the laboratory for the purpose of knowing the different parts of the body (5). The second month: Written exam (10) marks + marks and absences exams (5) marks + holding a competition among students to mark the parts (5) marks	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	**General entomology - 1980**
Electronic References, Websites	

Course Description Form

1. Course Name:
Principles of Horticulture
2. Course Code:
HORT111
3. Semester / Year:
First semester 2023/2024
4. Description Preparation Date:
20 / 7 / 2024
5. Forms of Attendance:
Attendance
6. Number of Studying Hours (Total) / Number of Units (Total)
75 hours / five units
7. Course Administrator's Name (mention all, if more than one name)

Name: 1- Salah Abdulhasan Ghailan **2- Najlaa Zaki Manoir**	**Email: salah.ghilan@uomisan.edu.iq**

8. Course Objectives

Course Objectives	- Teaching students the principles of horticulture, the basics of horticulture and explaining its branches and axes, which include: pomology, vegetable crops science, trees, shrubs, ornamental plants, medicinal and aromatic plants and landscapes. - The course aims to make the student understand horticultural facilities, their types, their field of use, and the benefits and advantages they provide. - The teaching of this course aims to understand the students how to prepare the land for agriculture through various agricultural operations, in addition to explaining the various methods of vegetative and sexual reproduction. - It also aims to teach the student modern horticultural methods and techniques such as hydroponics, tissue culture, and organic agriculture and their importance. - Stating the various agricultural and service operations that accompany plant growth from the germination stage to the post-harvest stages such as fertilization, irrigation, pest control, harvesting, and others.
9. Teaching and Learning Strategies	
Strategies	1- Using the lecture method to convey and explain information. 2- Motivating the student to read and search for information by asking them to prepare various scientific reports. 3- Following the discussion method with the students during the lecture to consolidate the scientific material and facilitate understanding. 4- Applying the theoretical aspect on the ground through practical field practices.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	**5**	understanding, perception, practical application	An overview of the temporary planting method (seedlings), its benefits, advantages, and differences between crops, in addition to the factors affecting the success and failure of this method.	Lecture and discussion	Verbal tests, quick tests and written exams.
2	**5**	understanding, perception, practical application	An overview of garden facilities, their types, uses, materials used in their composition, dimensions, etc.	Lecture and discussion	Verbal tests, quick tests and written exams.
3	**5**	understanding, perception, practical application	The effect of soil on the growth of horticultural crops, soil types and characteristics of soil suitable for growing horticultural crops.	Lecture and discussion	Verbal tests, quick tests and written exams.
4	**5**	understanding, perception, practical application	Land preparation operations for planting horticultural crops.	Lecture and discussion	Verbal tests, quick tests and written exams.
5	**5**	understanding, perception, practical application	Planning and construction of orchards, factors affecting them and types of	Lecture and discussion	Verbal tests, quick tests and written exams.

			design systems used.		
6	**5**	understanding, perception, practical application	Sexual reproduction, its definition, advantages, disadvantages and scope of use.	Lecture and discussion	Verbal tests, quick tests and written exams.
7	**5**	understanding, perception, practical application	First written exam		
8	**5**	understanding, perception, practical application	Vegetative reproduction, its definition, disadvantages, advantages, methods of vegetative reproduction, and types of plants that are suitable for each method.	Lecture and discussion	Verbal tests, quick tests and written exams.
9	**5**	understanding, perception, practical application	Methods of propagating date palms by seeds and offshoots, and the benefits and advantages of each method	Lecture and discussion	Verbal tests, quick tests and written exams.
10	**5**	understanding, perception, practical application	Establishing date palm farms, planning the farm and carrying out service operations before and after planting, including pollination, thinning, pest control, irrigation, fertilization and harvesting.	Lecture and discussion	Verbal tests, quick tests and written exams.
11	**5**	understanding, perception, practical application	. Organic farming, its definition, organic farming	Lecture and discussion	Verbal tests, quick tests and written exams.

			systems, objectives, principles, and the difference between it and traditional farming.		
12	**5**	understanding, perception, practical application	Second written exam	Second written exam	Second written exam
13	**5**	understanding, perception, practical application	Soilless agriculture (hydroponics), its definition, advantages, disadvantages, types of techniques used in it, and comparison between it and soil agriculture.	Lecture and discussion	Verbal tests, quick tests and written exams.

11. Course Evaluation

The grade is distributed out of 100 according to the tasks assigned to the student, such as daily, verbal and written exams as well as daily activities and reports ….etc.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Fundamentals of Plant Physiology book by Dr. Hashem El-Dessouki.
Main references (sources)	Plant Physiology Book by Dr. Muayad Fadhel Abbas.
Recommended books and references (scientific journals, reports...)	Scientific journals concerned with plant physiology.
Electronic References, Websites	All sites of agricultural journals and Journals related to physiological processes in plants.

Course Description Form

1. Course Name:
Mathematics
2. Course Code:
MATH101
3. Semester / Year:
First semester / 2023 - 2024
4. Description Preparation Date:
1/9/2023
5. Available Attendance Forms:
Full time (theoretical lecture)
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours per week for 15 weeks
7. Course Administrator's Name (Mention All, If More Than One Name)
Lecture. ALI ABBAS HASHIM Email: Name: ali_abbas@uomisan.edu.iq
8. Course Objectives

Course Objectives	**Graduating students capable of:** **1- Preparing a cadre capable of working in the fields of agriculture according to studied scientific methods** **2- Preparing an educated cadre in their field of specialization linked to the development and developments happening in countries around the world** **3- Preparing a distinguished cadre who is familiar with a lot of sufficient information to enter the private sector and build projects** **4- Preparing an educated cadre who can participate in government projects and the labor market** **5-Motivating students towards the desire to obtain better experiences and apply for postgraduate studies**

9. Teaching and Learning Strategies

Strategy	**Cognitive goals** **1- Describe the shapes and types of matrices** **2- Identify methods of solving matrices.** **3- Knowing the methods of multiplying matrices and their quantities.** **4- Providing students with a scientific background related to calculus**

10. Course Structure

Week	Hours	Required learning outcomes	Unit or Subject Name	Learning Method	Evaluation
1	2	Bachelor's	Orthogonal matrices	Take a look and view the slides	the exams Daily and monthly

2	2	Bachelor's	Square matrices	Take a look and view the slides	the exams Daily and monthly And
3	2	Bachelor's	Conjugate matrix	Take a look and view the slides	the exams Daily and monthly
4	2	Bachelor's	Determinants	Take a look and view the slides	the exams Daily and monthly
5	2	Bachelor's	Cramer's rule	Take a look and view the slides	the exams Daily and monthly And final reports
6	2	Bachelor's	Semester exam	Take a look and view the slides	the exams Daily and monthly
7	2	Bachelor's	Derivatives	Monthly test	Monthly test
8	2	Bachelor's	Trigonometric functions	Take a look and view the slides	the exams Daily and monthly And final reports daily
9	2	Bachelor's	Exponential functions	Take a look and view the slides	the exams Daily and monthly And final

10	2	Bachelor's	Logarithmic functions	Take a look and view the slides	the exams Daily and monthly And final
11	2	Bachelor's	integration	Take a look and view the slides	the exams Daily and monthly And final reports daily
12	2	Bachelor's	Integration of trigonometric functions	Take a look and view the slides	the exams Daily and monthly And finalreports daily
13	2	Bachelor's	Integration of exponential functions	Take a look and view the slides	the exams Daily and monthly And final reports daily
14	2	Bachelor's	Integration of logarithmic functions	Take a look and view the slides	the exams Daily and monthly And final reports
15	2	Bachelor's	Semester exam	Take a look and view the slides	the exams Daily and monthly And final reports
11. Course Evaluation					

- **Daily exams with multiple-choice questions that require scientific skills.**
- **Daily exams with scientific questions.**
- **Participation grades for competition questions for academic subjects.**
- **Marking homework and reports**
- **- Grades for the student's activity during the lecture and the extent of his commitment**

to regular attendance and absence.

12. Learning and Teaching Sources

1. **Mathematics book for economics, administrative and financial sciences 2015**

Dr. Mahmoud Mahdi Al-Bayati and Dr. Dalal Al-Qadi

Course Description Form

1. Course Name:	
Entomology 2	
2. Course Code:	
ENTM114	
3. Semester / Year:	
2023 / 2024	
4. Description Preparation Date:	
15 / 4 / 2024	
5. Forms of Attendance:	
My presence	
6. Number of Studying Hours (Total) / Number of Units (Total)	
75 Hours/ five Units	
7. Course Administrator's Name (mention all, if more than one name)	
Name: Ali Hussein Ali	**Email: ali_hussain@uomisan.edu.iq**
8. Course Objectives	
Course Objectives	**Description of the internal organs of insects and their accessories .the functionns performed by the internal organs of insects. Identifying the differences orangs among different insects.**
9. Teaching and Learning Strategies	
Strategies	**1.Using the method of delivering information through lecture.** **2.Involving students in obtaining information by asking them to submit scientific reports.** **3.Tranining students in the method of logical discussion to reach results.** **4.Learning through applied field practices.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	**5**	**Understanding, Realization, the practical application.**	**The digestive system in insects in the anterior alimentary canal.**	**Lecture and discussion.**	**Oral exams quick (COZ) and written exams.**

2	5	Understanding, Realization, the practical application.	Middle alimentary canal the posterior.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
3	5	Understanding, Realization, the practical application.	Glands connected to the duct Digestive.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
4	5	Understanding, Realization, the practical application.	Respiratory system in insects.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
5	5	Understanding, Realization, the practical application.	breathing.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
6	5	Understanding, Realization, the practical application.	Nervous system insect	Lecture and discussion.	Oral exams quick (COZ) and written exams.
7	5	Written exam	Written exam	Written exam	Written exam
8	5	Understanding, Realization, the practical application.	Accessory to the organ Nervous glands in insects.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
9	5	Understanding, Realization, the practical application.	Circulatory system in insects.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
10	5	Understanding, Realization, the practical application.	Blood circulation in inseccts	Lecture and discussion.	Oral exams quick (COZ) and written exams.
11	5	Understanding, Realization, the practical application.	The reproductive system in insects.	Lecture and discussion.	Oral exams quick (COZ) and written exams.

12	**5**	**Written exam**	**Written exam**	**Written exam**	**Written exam**
13	**5**	**Understanding, Realization, the practical application.**	**Methods of reproduction in insects**	**Lecture and discussion.**	**Oral exams quick (COZ) and written exams.**
14	**5**	**Understanding, Realization, the practical application.**	**Muscular system in insects**	**Lecture and discussion.**	**Oral exams quick (COZ) and written exams.**
15		**Understanding, Realization, the practical application.**	**Installation of the insects body wall**	**Lecture and discussion.**	**Oral exams quick (COZ) and written exams.**

11. Course Evaluation	
Distribution of the grade out of 50 according to the tasks assigned to the student, such as homework, daily, oral, monthly, written exams, reports, etc.	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**Entomology trans lated by Dr.Ali Shaalan and Dr.Seedi Mohammed Hilal.**
Main references (sources)	**Entomology professor Dr.Osama Bahareth.**
Recommended books and references (scientific journals, reports...)	**Scientific journals, books and research related to insects.**
Electronic References, Websites	**All agricultural magazine sites and insects magazines.**

Course Description Form

1. Course Name:	
Organic Chemistry	
2. Course Code:	
ORGC104	
3. Semester / Year:	
The Second spring course / First year	
4. Description Preparation Date:	
5. Forms of Attendance:	
Mandatory (Theoretical / Practical)	
6. Number of Studying Hours (Total) / Number of Units (Total)	
7. Course Administrator's Name (mention all, if more than one name)	
Name: Ayat Jawdat Kathem	**Email:** ayat.jawdat@uobasrah.edu.iq

8. Course Objectives	
Course Objectives	**Definition the student to Organic chemistry**

9. Teaching and Learning Strategies	
Strategies	**Theoretical lectures** **Use the Curriculum book** **Use the blackboard**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	**2 theoretical + 3 Practical**	**Definition the student to Organic chemistry,Properties of the element carbon,Types of chemical bonds**	**Introduction of Organic Chemistry**	**Using theoretical lectures and using the blackboard structures**	**quiz**
2	**2 theoretical + 3 Practical**	**Definition the student to Hybridization + Definition the student about of the melting point**	**Introduction of Organic Chemistry + Melting point**	**Using theoretical lectures and using the blackboard structures**	**quiz**

3	2 theoretical + 3 Practical	Definition the student to Alkanes , Name them , isomers, physical and chemical properties	Saturated Hydrocarbons 'AlKanes'	Using theoretical lectures and using the blackboard structures	quiz
4	2 theoretical + 3 Practical	Preparation of alkanes, cycloalkanes	Saturated Hydrocarbons 'AlKanes'	Using theoretical lectures and using the blackboard structures	quiz
5	2 theoretical + 3 Practical	Definition the student to Alkenes , Name them , isomers, physical and chemical properties + Definition the student about of the Poiling point	unSaturated Hydrocarbons 'AlKenes' + Poiling point	Using theoretical lectures and using the blackboard structures	quiz
6	2 theoretical + 3 Practical	FIRST MONTH EXAM			
7	2 theoretical + 3 Practical	Preparation of alkenes	unSaturated Hydrocarbons 'AlKenes'	Using theoretical lectures and using the blackboard structures	quiz
8	2 theoretical + 3 Practical	Definition the student to Dienes , name and preparation them	unSaturated Hydrocarbons 'AlKenes'	Using theoretical lectures and using the blackboard structures	quiz
9	2 theoretical + 3 Practical	Definition the student to Alkynes , Name them , physical and chemical properties	unSaturated Hydrocarbons 'AlKynes'	Using theoretical lectures and using the blackboard structures	quiz
10	2	Preparation of	unSaturated	Using	quiz

	theoretical + 3 Practical	**alkynes + Definition the student about of the Recrystaiiization**	**Hydrocarbons 'AlKynes' + Recrystallization**	**theoretical lectures and using the blackboard structures**	
11	**2 theoretical + 3 Practical**	**Definition the student to Aromatic Comopounds , Name them , physical and chemical properties**	**Aromatic Comopounds**	**Using theoretical lectures and using the blackboard structures**	**quiz**
12	**2 theoretical + 3 Practical**	**FIRST MONTH EXAM**			
13	**2 theoretical + 3 Practical**	**GENERAL REVIEW**			

11. Course Evaluation

The theoretical part (30) marks:
Written exam (25) marks + quiz exams (5) marks.
Practical part (20) marks:
The first month: a written exam (20 marks).

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Introduction of Organic Chemistry Dr. Fadel Suleiman Kammouna**
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Zoology	
2. Course Code:	
ZOOL113	
3. Semester / Year:	
First course / First year	
4. Description Preparation Date:	
5. Forms of Attendance:	
Mandatory (Theoretical / Practical)	
6. Number of Studying Hours (Total) / Number of Units (Total)	
75 / 5	
7. Course Administrator's Name (mention all, if more than one name)	
Name: Maysaa Mohsen Ali Muhammad	**Email:**

8. Course Objectives	
Course Objectives	**1. Definition of zoology and its branches.** **2. Knowing the structures of animals and ways to distinguish between them.** **3. Identify the benefits and harms of different animals.**
9. Teaching and Learning Strategies	
Strategies	**1. A detailed theoretical explanation of the chapters of the subject related to everything related to animals** **2. Conduct field visits and collect models of different animals** **3. Conduct laboratory classification on the collected animal models** **4. Applying daily and monthly exams and requesting the preparation of periodic reports on the subjects he studied**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	**2 theoretical + 3 Practical**	**The student will be familiar with the introduction to science Animals and their relationship to other sciences.**	**Zoology**	**general explanation and model presentation**	**quiz**
2	**2 theoretical + 3**	**The student gets to know the method of scientific research**	**Zoology**	**Using theoretical lectures and using the**	**quiz**

	Practical			**blackboard structures**	
3	**2 theoretical + 3 Practical**	**The student gets to know the origin of life and its theories**	**Zoology**	**Using theoretical lectures and using the blackboard structures**	**quiz**
4	**2 theoretical + 3 Practical**	**The student gets to know the cell and protoplasm**	**The Cell**	**Using theoretical lectures and using the blackboard structures**	**quiz**
5	**2 theoretical + 3 Practical**	**The student gets to know the cytoplasm**	**The Cell**	**Using theoretical lectures and using the blackboard structures**	**quiz**
6	**2 theoretical + 3 Practical**	**The student will learn about cell division and its causes**	**Cell division**	**Using theoretical lectures and using the blackboard structures**	**quiz**
7	**2 theoretical + 3 Practical**	**The student gets to know animal tissues**	**Animal tissue**	**Using theoretical lectures and using the blackboard structures**	**quiz**
8	**2 theoretical + 3 Practical**	**The student gets to know enzymes and their role in the life of organisms**	**Enzymes**	**Using theoretical lectures and using the blackboard structures**	**quiz**
9	**2 theoretical + 3 Practical**	**The student will learn about chemical coordination in biology and how the nervous system works**	**Nervous System**	**Using theoretical lectures and using the blackboard structures**	**quiz**
10	**2 theoretical +**	**The student gets to know organic evolution**	**Organic development in animals**	**Using theoretical lectures and**	**quiz**

	3 Practical			**using the blackboard structures**	
11	**2 theoretical + 3 Practical**	**The student gets to know animal ecology**	**Animal Ecology**	**Using theoretical lectures and using the blackboard structures**	**quiz**
12	**2 theoretical + 3 Practical**	**For the student to become acquainted with the kingdom of Monera- the division of Porifera**	**Kingdom of Monera**	**Using theoretical lectures and using the blackboard structures**	**quiz**
13	**2 theoretical + 3 Practical**	**For the student to become acquainted with the division of Cnidaria - Flatworm**	**the division of Cnidaria - Flatworm**	**Using theoretical lectures and using the blackboard structures**	**quiz**
14	**Second month exam**				**Second month exam**

11. Course Evaluation

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Zoology - Dr. Zuhair Ibrahim Futohi Najm Shlemon Korkis 1989**
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1-Course name:	
Agricultural Economy	
2-Course code/first stage	
AGRE100	
3-Semester/year/	
first semester – 2023-2024	
4-The date this description was prepared: 9/20/2023	
5-Available forms of attendance/in-person	
6-Number of study hours (total) / Number of units (total) /	
30 hours / 2 units	
7-Name of the course officer (if more than one name is mentioned) / Professor Alaa Kazem Farhan	
M.D. Alaa Kazem Farhan	**Email: alaa.k.f@uomisan.edu.iq**
8-Course objectives	
• **Objectives of the study subject***	***Introducing students to the importance of the agricultural economy and the agricultural .process** ***Inform the student about the distribution of agricultural resources for their alternative .uses** ***Introducing students to the tasks carried out by a farm manager, and distinguishing .between competing and alternative projects**
9-Teaching and learning strategies	
The strategy	**Learning is done through class lectures**

1-Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Hours	week
Questions during the lecture	Class lecture	Economics and its branches	Introduction to general economics	2	Week 1
Questions during the lecture	Class lecture	Definition of agricultural economics and its importance	Agricultural economics	2	Week 2
Questions during the lecture	Class lecture	Agriculture and its characteristics	The concept of agriculture	2	Week 3
Questions during the lecture	Class lecture	Objectives of studying farm	Farm business management	2	Week 4

		business			
Questions during the lecture	Class lecture	The basic pillars of economic الزراعي activity	Agricultural economic activity and its components	2	Week 5
Questions during the lecture	Class lecture	Definition of farm Farm manager jobs	Farm manager	2	Week 6
Questions during the lecture	Class lecture	Defining projects and their types from a competitive and functional perspective	Farm projects	2	Week 7
Questions during the lecture	Class lecture	_____	First month exam	2	Week 8
Questions during the lecture	Class lecture	Introduction to the economics of agricultural production	Economics of agricultural production	2	Week 9
Questions during the lecture	Class lecture	Introducing economic resources and human needs	Human needs and agricultural economic resources	2	Week 10
Questions during the lecture	Class lecture	Definition of price elasticity of demand	Price elasticity of demand	2	Week 11
Questions during the lecture	Class lecture	Definition of income elasticity of demand	Income elasticity of demand	2	Week 12
Questions during the lecture	Class lecture	Definition of cross elasticity of demand	Cross elasticity of demand	2	Week 13
Questions during the lecture	Class lecture	Definition: Law of diminishing returns	Law of diminishing returns	2	Week 14
		_____	Second month exam	2	Week 15

11-Course evaluation

1- -Distribution of the grade out of 100 according to the tasks assigned to the -0student,such as daily preparation, daily, oral, monthly, written exams, reports, etc.

2- -Examination of the first month of 20 degrees

-Second month exam of 20 marks-

-Taking daily surprise exams of 3 grades. -Extracurricular activities, 4 marks ، -Final exam of 50 marks ،	
12-Specific books required (methodology, if any	
Main references (sources)	Agricultural Resource Economics, Dr. Hamed Abdel Shafi/Faculty of Agriculture - Mansoura .University
Recommended supporting books and ....references scientific journals, reports	Principles of agricultural economics, Dr. Mohamed Shata / Faculty of Agriculture - .Mansoura University

Course Description Form

1. Course Name:	
English Language 1	
2. Course Code:	
ENGL105	
3. Semester / Year:	
2023-2024 (First course)	
4. Description Preparation Date: **The beginning of the first course**	
5. Forms of Attendance:	
Attending in college	
6. Number of Studying Hours (Total) / Number of Units (Total)**= 15**	
7. Course Administrator's Name (mention all, if more than one name)	
Name: Dr.Farhan Jasim Mohammed	**Email: farhanalhakim@uomisan.edu.iq**
8. Course Objectives	
Course Objectives	**1- Providing the student with academic writing skills and English grammar** **2-Providing the student with the skill of speaking the English language** **3-Providing the student with the skill of listening to the English language** **4-Providing the student with reading and reasoning in the English language**
9. Teaching and Learning Strategies	
Strategies	**Using modern means to deliver information to students and using field work to learn more about the course methodology, which is part of modern education, so that complete information about the course is available after the student .graduates**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	1	Understanding, perception, practical application	Sections of speech, sentence and phrase in the English language, understanding	Lecture and discussion	Oral exams, quizzes and written exams
2nd	1	Understanding, perception, practical application	Proper nouns, indefinite nouns, material nouns, plural nouns, moral nouns, countable and uncountable .nouns, definite and indefinite articles	Lecture and discussion	Oral exams, quizzes and written exams
3rd	1	Understanding, perception, practical application	Pronouns, their types: personal, accusative, prepositional, possessive, reflexive, demonstrative, relative ،pronouns and interrogative pronouns	Lecture and discussion	Oral exams, quizzes and written exam

4th	1	Understanding, perception, practical application	Auxiliary verbs and their types	Lecture and discussion	Oral exams, quizzes and written exam
5th	1	Understanding, perception, practical application	Tenses in the active voice: simple tense: present, past, future	Lecture and discussion	Oral exams, quizzes and written exam
6th	1	Understanding, perception, practical application	Continuous tense: present, past, future	Lecture and discussion	Oral exams, quizzes and written exam
7th	1	written exam	First month exam	written exam	written exam
8th	1	Understanding, perception, practical application	Perfect tense: present, past, continuous	Lecture and discussion	Oral exams, quizzes and written exam
9th	1	Understanding, perception, practical application	The perfect continuous tense: present, past, future	Lecture and discussion	Oral exams, quizzes and written exam
10th	1	Understanding, perception, practical application	Adjectives: scientific, possessive, descriptive, long adjectives, short adjectives, comparison and simile	Lecture and discussion	Oral exams, quizzes and written exam
11th	1	Understanding, perception, practical application	Sounds in the English language: correct, .vowel	Lecture and discussion	Oral exams, quizzes and written exam
12th	1	written exam	Second month exam	written exam	written exam
13th	1	Understanding, perception, practical application	Basics of academic writing	Lecture and discussion	Oral exams, quizzes and written exam
14th	1	Understanding, perception, practical application	Write the message and email and compile the research	Lecture and discussion	Oral exams, quizzes and written exam
11th	1	Understanding, perception, practical application	Listen to conversations in English, reading	Lecture and discussion	Oral exams, quizzes and written exam

11. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such .as homework, daily, oral, monthly written exams, final written exam, reports, etc

12. Learning and Teaching Resources

Required textbooks	**New headway beginner**

(curricular books, if any)	**Liz and John Soars, Paul Hancock**
Main references (sources)	
Recommended books and references (scientific journals, reports...)	**Access to recent research, articles and studies related to modern learning methods**
Electronic References, Websites	**All English language learning sites**

Description of the academic program

Course name:

Computer Applications 1

Course code

COMA103

Semester/year :

Spring Semester/year2024

Date this description was prepared:

2/1/2024

Available forms of attendance are in person

Total number of study hours / total number of units

(30) / (2)

Name of the course administrator (if more than one name is mentioned)

Name : ABBAS LUAIBI OBAID	**Email : abbas.alrajhe@uomisan.edu.iq**

Module Aims

Introducing the student to the basics of computers and types of computers Its classification, operating systems and objectives. As for the goals of the practical side It is to provide the student with skills in using operating and application programs and how to maintain computer security.

Teaching and learning strategies

1- Explanation, clarification, and honing general and qualifying skills
2- Urging the student to write simple research using the lecture method to create a state of balance between methodological information and source information.
3- Urging the student to work on practical projects on the calculator and hold discussion circles among the students on the methodology of the subject and distribute the students into groups.
4-Practical lessons in the laboratory
5- The method of self-learning and writing scientific reports, and urging the student to evaluate the answers of his fellow students to develop self-development.

Course structure

Week	hours	required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1+2	4	**Chapter One: Computer Basics** **1. The development of computer generations** **2. Electronic computer** **3. Data and information** **4. Computer features** **5. Areas of computer use**	**Chapter One: Computer Basics**	**Practical lectures + direct presentation methods + dialogue and discussion**	**Daily, monthly and final tests and reports**
3+4	4	**1. Computer components** **2. Types of computers**	**Chapter One: Computer Basics 1**	**Practical lectures +**	**Daily, monthly and**

		3. Classification of computers		**direct presentation methods + dialogue and discussion**	**final tests and reports**
5+6	4	**Chapter Two: Computer components** **1. Computer components** **2. The physical parts of the computer** **3. Input devices** **4. Output devices** **5. Computer box**	**Chapter Two: Computer components**	**Practical lectures + direct presentation methods + dialogue and discussion**	**Daily, monthly and final tests and reports**
7+8	4	**1.Software entity** **2. Number systems** **3. Your personal computer** **4. Computer platform** **5. Factors that must Take this into consideration when purchasing a computer**	**Chapter Two: Computer components**	**Practical lectures + direct presentation methods + dialogue and discussion**	**Daily, monthly and final tests and reports**
9+10	4	**Chapter III (Computer security and licensing programs)** **1. Ethics of the electronic world** **2. Forms of abuses in the world Electronic** **3. Computer security** **4. Computer privacy** **5. Computer software licenses** **6. Types of licenses** **7. Intellectual property**	**Chapter Three (Computer security and licensing programs)**	**Practical lectures + direct presentation methods + dialogue and discussion**	**Daily, monthly and final tests and reports**
11+12	4	**1. Electronic hacking** **2. Types of electronic hacking** **3. Sources of hacking Electronic** **4. The most security risks widespread** **5. Malicious software** **6. Computer viruses** **7. Damages resulting from Viruses** **8. Components of viruses**	**Chapter Three (Computer security and licensing programs)**	**Practical lectures + direct presentation methods + dialogue and discussion**	**Daily, monthly and final tests and reports**

		9. Types of viruses 10. Necessary steps for protection From viruses 11. Computer damage On human health			
13+14	4	the fourth chapter Operating Systems 1. Definition of the operating system 2. Operating system functions 3. Objectives of the operating system 4. Operating system classification 5. Examples of some operating systems	the fourth chapter Operating Systems	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
15	4	1.Windows 7 operating system 2.Windows 7 installation requirements 3.Windows 7 features 4. Surface components	the fourth chapter Operating Systems	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, .oral, monthly, written exams, reports, etc					

Learning and teaching resources

Required textbooks (methodology, book four)	Written by: 1- Professor Dr. Ghassan Hamid Abdel Majeed 2-Professor Dr. Ziad Muhammad Abboud 3-Professor Dr. Muhammad Nasser Al-Tarfi 4-Professor Dr. Safaa Abbas Al-Mamouri 2- International Information Network, the Internet
Main references (sources)	1- Internet Ethics - A. M. Alawi Hind - Al-Shabsi Arab University Center 2- Ethics of dealing with technical and communication resources - Dr. Hussein bin Saeed bin Saif 3- Ethics of the virtual world - Dr. Louay Al-Zoubi 2013
Recommended supporting books and references (scientific journals, reports....)	
Electronic references, Internet sites	Library Genesis :websites History of the development of computer networks, - objective website: http://mawdoo3.com http://youstaff.blogspot.com: Information and Internet security http://geeklesstech.com : Internet Law Laws for using the - Internet Real-time communication protocols in the Internet (RTP - .SIP), World of Technology website ARPANET logical map,

	.http://russbellew.com/Documents/Arpanet_sep_1974

Description of the academic program

1- A course Name:	
Freedom and Democracy	
2- Course Code	
FRED107	
3- Semester / Year /	
Semester – Second Course	
4- Date of preparation of this description:	
2023/9/2	
5- Available attendance forms:	
Weekly	
6- Number of study hours (total): ..... hours	
15 / 1	
7- Course Supervisor Name:	
Asst. Prof. Dr. Ali Aziz Dawood	**Email: ali_izaz@uomisan.edu.iq**
8- A course objectives	
Subject objectives	• **Introducing students to the concept of freedom and democracy and their origins.** • **Introducing students to human rights and democracy in ancient civilizations.** • **Introducing students to human rights in divine laws and religions.** • **Emphasizing the features and characteristics of human rights and the extent of their application in power.** • **Emphasizing the application of freedom and democracy in their correct concept according to the societal perspective.**
9- Teaching and learning strategies	
The Strategy :	**The strategy in applying this course is for the student to become familiar with the nature of freedom and democracy, their definition, and the most important ways of spreading and applying them, as well as defining the special features of human rights under the different governments in our contemporary world.**

10- Course structure

The Week	Hours	Required learning outcomes	Unit or topic name	Learning method	Evaluation method
Day 1	**theoretical ١**	**Introduction to Freedom and Democracy**	**Definition and objectives**	**Theoretical lecture**	**Exams + Quizzes**
Day 2	**theoretical ١**	**Advantages of freedom and democracy**	**Introductions to Freedom and Democracy in Ancient Civilizations**	**Theoretical lecture**	**Exams + Quizzes**
Day 3	**theoretical ١**	**Learn about human rights**	**Human rights in ancient civilizations**	**Theoretical lecture**	**Exams + Quizzes**
Day 4	**theoretical 1**	**Understanding and awareness are the most important**	**Guarantees for the implementation of the human right to live as**	**Theoretical lecture**	**Exams + Quizzes**

		human rights.	a human being		
Day 5 The Week	theoretical 1 Hours	Defining the concept and characteristics of human rights Required learning outcomes	Defining the concept of human rights and their divisions Unit or topic name	Theoretical lecture Learning method	Exams + Quizzes Evaluation method
Day 6	theoretical ١	Forms of human rights	Explaining and clarifying the forms and classifications of human rights	Theoretical lecture	Exams + Quizzes
Day 7	theoretical ١	Public freedoms	Definition of freedom according to linguistic and legal terminology	Theoretical lecture	Exams + Quizzes
Day 8	theoretical ١	Freedom and democracy in the western perspective	Explanation and clarification of freedom and democracy from the Western perspective	Theoretical lecture	Exams + Quizzes
Day 9	theoretical ١	Characteristics of democracy	Explanation and clarification of the most important features	Theoretical lecture	Exams + Quizzes
Day 10	theoretical ١	The emergence of democracy	The most important ways to spread democracy	Theoretical lecture	Exams + Quizzes
Day 11	theoretical ١	Forms of democracy	Defining the most important forms of democracy	Theoretical lecture	Exams + Quizzes
Day 12	theoretical ١	Islam and democracy	Governance and authority in the Islamic concept	Theoretical lecture	Exams + Quizzes
Day 13	theoretical ١	Democratic State	Is a democratic state a state of citizenship ?	Theoretical lecture	Exams + Quizzes
Day 14	theoretical ١	Dictatorships	How dictatorial regimes arise	Theoretical lecture	Exams + Quizzes
Day 15	theoretical ١	midterm exam review	Monthly exam	Theoretical lecture	Exams + Quizzes

11- Course Evaluation	
The grade is distributed out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, reports, posters, etc.	
12- Learning and teaching resources	
Required textbooks (methodology if any)	Books related to freedom, democracy and human rights by a group of authors
Main References (Sources)	From textbooks, auxiliary books, the Internet and scientific research.
Recommended supporting books and references (scientific journals, reports...)	Scientific journals in basic disciplines
Electronic references, websites	found on web pages

Second Stage

Course Description Form

1. Course Name:	
Analytical Chemistry	
2. Course Code:	
ANAC205	
3. Semester / Year:	
Second semester 2023/2024	
4. Description Preparation Date:	
2024/4/15	
5. Forms of Attendance:	
In Class Rome	
6. Number of Studying Hours (Total) / Number of Units (Total)	
75 hours / five units	
7. Course Administrator's Name (mention all, if more than one name)	
Name: asaad shamil atiyah	Email: asaad.shameel@uomisan.edu.iq
8. Course Objectives	
Course Objectives	• Learn about analytical chemistry, and provide general information about analytical chemistry • Identify ways to express concentrations and their types. • Introducing the student to the strong and weak acid and base according to the Brunshead and Lewis principle • Identify sedimentation methods according to Volgahan's principle and others • Identify buffer solutions and methods of preparing them • Identify the titration and titration equations
9. Teaching and Learning Strategies	
Strategies	1- Using the method of delivering information through lecture 2- Students share information by submitting scientific reports. 3- Training students on the method of logical discussion to reach results.
10. Course Structure	
The theoretical part :	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	The student will be familiar with analytical chemistry, identifying	Introduction to analytical chemistry, identifying its types (descriptive and quantitative) and explaining	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar

			each		
2	2	The student will be familiar with ways of express concentration	ways of express concentration	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
3	2	The student will be familiar with Neutralization reactions	Neutralization reactions of acids and bases	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
4	2	The student will be familiar with Calculating the pH in solutions	Calculating the pH in solutions of acids, bases, salts and buffers	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
6	2	The student will be familiar with Derive the graph for the reaction	Derive the graph for the reaction of an acid and a base	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
7	2	The student will be familiar with Depositional tritration	Depositional tritration	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
8	2	The student will be familiar with Complex formation reactions	Complex formation reactions	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
10-11	2	The student will be familiar with Oxidation and reduction	Oxidation and reduction reactions	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
12-13	2	The student will be familiar with gravimetric analysis	Measurement methods in gravimetric analysis	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific

					seminar
14	2	The student will be familiar with color absorption spectrum	components of the color absorption spectrum	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
5-9-15	2	on paper	Exam	-	-
					practical part:
1	3	The student will be familiar with laboratory instruments	Introduction to laboratory instruments	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
2	3	The student will be familiar with analytical chemistry	Introduction to analytical chemistry	data show , Electronic whiteboard , Scientific discussion, Conducting experiments in the laboratory	coes exam, Monthly exam, Presentation of a scientific seminar
3	3	The student will learn Prepare a standard base	Prepare a standard acid	data show , Electronic whiteboard , Scientific discussion, Conducting experiments in the laboratory	coes exam, Monthly exam, Presentation of a scientific seminar
4	3	The student will learn Prepare a standard base	Prepare a standard base	data show , Electronic whiteboard , Scientific discussion, Conducting experiments in the laboratory	coes exam, Monthly exam, Presentation of a scientific seminar
5	3	The student will be familiar with Neutralization of an acid	Neutralization of an acid with a base (such as HcI with NaOH)	data show , Electronic whiteboard , Scientific discussion,	coes exam, Monthly exam, Presentation of a scientific

				Conducting experiments in the laboratory	seminar
7-8	3	The student will be familiar with Oxidation and reduction reaction	Oxidation and reduction reaction (such as KMnO4 with Na2C2O4)	data show , Electronic whiteboard , Scientific discussion, Conducting experiments in the laboratory	coes exam, Monthly exam, Presentation of a scientific seminar
9-10	3	The student will be familiar with	Oxidation and reduction (KIO3 with Na2S2O3)	data show , Electronic whiteboard , Scientific discussion, Conducting experiments in the laboratory	coes exam, Monthly exam, Presentation of a scientific seminar
11-12	3	The student will be familiar with	Analysis of complex formation (EDTA with CaCO3)	data show , Electronic whiteboard , Scientific discussion, Conducting experiments in the laboratory	coes exam, Monthly exam, Presentation of a scientific seminar
6-13-14-15	3	on paper	Exam	-	-

11. Course Evaluation	
Distribution of the grade out of 50 according to the tasks assigned to the student, such as .homework, daily, oral, monthly, written exams, reports, etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1- Analytical Chemistry - Skoog 2- Analytical and gravimetric chemistry - Hade Awed
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Scientific journals specialized in biochemistry
Electronic References, Websites	All agricultural and biochemical sciences journal sites

Course Description Form

1. Course Name:	
Insects taxonomy	
2. Course Code:	
INST216	
3. Semester / Year:	
Courses	
4. Description Preparation Date:	
5. Forms of Attendance:	
Attendance only	
6. Number of Studying Hours (Total) / Number of Units (Total)	
75 hours / 5 units	
7. Course Administrator's Name (mention all, if more than one name)	
Asist.Lecture Name: Fatima.kassem.Hamdan	**Email: fatima.kassem@uomisan.edu.iq**
8. Course Objectives	
Course Objectives	• **Introducing the student to the science of classification, its importance and its connection with other sciences, and knowing the meanings of ancient and modern terms used in classification science in classification science.** • **Study and learn about the history of taxonomy and the role of scientists in taxonomy** • **Trace the role of scientist Carlos Linnaeus in taxonomy** • **Study of the work a taxonomist performs when diagnosing or identifying a new species.** • **Definition of the importance of fossils in taxonomy** • **Knowledge of the simple division of animals obtained from fossils.** • **Learn about the location of insects in the animal kingdom, the phylum to which they belong, and the other classes in this phylum** • **Compare the most prominent characters found in each class of the arthropod phylum** • **Knowledge of insect groups and where to use each group.** • **- Studying new unstudied or undiagnosed insect models** • **Knowledge of international nomenclature laws and how different types of diagnostic keys work**
9. Teaching and Learning Strategies	
Strategies	**-Assigning students to conduct reports and research on topics related to the curriculum** **- Bringing insects from different regions for the purpose of diagnosing them and knowing their most prominent characteristics** **- Theoretical lectures and the use of PowerPoint and the methodological book**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	method Learning	Evaluation method

1	5	Students learned about taxonomy the importance of taxonomy and its connection to other sciences	Classification its goals and history	Using the lecture method and using the Data show device to display data	Coz test at the end of the lecture
2	5	Students learned about the history of taxonomy the obstacles that occurred throughout the ages and the most prominent scientists who contributed to taxonomy	History of taxonomy	Using the lecture method and using the Data show device to display data	Questions and closing discussion
3	5	Students learned about the work carried out by the scientist Carlos Linnaeus and his role in taxonomy	Linnaeus's role in the advancement of entomology	Using the lecture method and using the Data show device to display data	Coz test at the end of the lecture
4	5	Students learned about the work carried out by a taxonomist in diagnosing or classifying a specific species, starting with collecting samples and ending with naming the species and sending it to the museum to confirm the .diagnosis	The work performed by the taxonomist	Using the lecture method and using the Data show device to display data	Questions and closing discussion
5	5	Students learned about the importance of fossils in diagnosing and classifying extinct species	The role of fossils in taxonomy	Using the lecture method and using the Data show device to display data with videos of grades	Coz test at the end of the lecture
6	5	Students learned about the division that occurred in animals based on fossils which included invertebrates and vertebrates	Simple division of common animals into fossils	Using the lecture method and using the Data show device to display data	Questions and closing discussion
7	5	Students learned about the location of insects in the animal kingdom and the division of the arthropod phylum to which the class of insects belongs to several classes based	The location of insects in the animal kingdom and the division of the arthropod phylum into several classes	Using the lecture method and using the Data show device to display data	Questions and closing discussion

		on a set of characteristics			
8	**5**	**Students learned about the most prominent classes in the Arthropoda division and the distinctive characteristics of each class**	**Division of the phylum Arthropoda**	**Using the lecture method and using the Data show device to display data**	**Questions and closing discussion**
9	**5**	**Students learn about the most prominent existing insect groups that are used by researchers, institutes and universities and they are interested in the colors**	**Types of insect groups**	**Using the lecture method and using the Data show device to display data**	**Coz test at the end of the lecture**
10	**5**	**Students learned how to identify insect models if they were not previously registered**	**Definition of insect models**	**Using the lecture method and using the Data show device to display data**	**Coz test at the end of the lecture**
11	**5**	**Students become acquainted with the international laws agreed upon in naming a particular species scientifically**	**Bionomial nomencalture**	**Using the lecture method and using the Data show device to display data**	**Coz test at the end of the lecture**
12	**5**	**Students familiarize themselves with the types of classification keys**	**Taxonomic keys**	**Using the lecture method and using the Data show device to display data**	**Coz test at the end of the lecture**
13	**5**	**Students become familiar with the higher and lower classification levels**	**Classification catagery**	**Using the lecture method and using the Data show device to display data**	**Coz test at the end of the lecture**
14	**5**	**Students learned about a list of terms in taxonomy, including species - infra-species - supra-species - family - polymorphic species - hidden species**	**Taxonomy terminology**	**Using the lecture method and using the Data show device to display data**	**Questions and closing discussion**
15	**5**	**Students learned how a order is distinguished from other order by only one characteristic**	**Orders to which petrygota and Apetrygota insects**	**Requesting students to submit presentations using the Data Show device on**	

				different topics related to the different orders of insects, supplementing this with an explanatory video about a specific .species	

11. Course Evaluation

Distribution of the grade out of 50 according to the tasks assigned to the student, such as .homework, daily, oral, monthly, written exams, reports, etc
Theoretical part: Average of the first and second months (30) marks:
The first month: written exam (25) marks + exams and absences (5) marks.
The second month: written exam (25 marks) + presentations (5 marks).
Practical part: average for the first and second months (20) marks:
The first month: a written exam (10) marks + marks and absences exams (5) marks + bringing insects to learn the most prominent characteristics and taxonomic category
The second month: Written exam (10) marks + marks and absences exams (5) marks + holding a competition among students to quickly mention the order to which the species belongs (5) marks..

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	**Basics of insect classification, 2010**
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Agriculture Machinery
2. Course Code:
AGRM214
3. Semester / Year:
First semester / 2023 - 2024
4. Description Preparation Date:
1/9/2023
5. Available Attendance Forms:
Full time (theoretical lecture)
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours per week for 15 weeks
7. Course Administrator's Name (Mention All, If More Than One Name)
Lecture. ALI ABBAS HASHIM Email: Name: ali_abbas@uomisan.edu.iq
8. Course Objectives

Course Objectives	**Graduating students capable of:** **1- Preparing a cadre with the ability to work in the field of plant protection according to studied scientific methods** **2- Preparing an educated cadre in their field of specialization linked to the development and developments happening in countries around the world** **3- Preparing a distinguished cadre who is familiar with a lot of sufficient information to enter the private sector and build projects** **4- Preparing an educated cadre who can participate in government projects and the labor market** **5- Motivating students towards the desire to obtain better experiences and apply for postgraduate studies**

9. Teaching and Learning Strategies

Strategy	**Tourism goals.** **1- Employing knowledge and understanding in a field** **2- Familiarity with the theoretical and experimental aspects of the scientific subject** **3- Building a scientific base for future generations of students to work in society and in life** **4- It requires scientific skills in the field of future specialization**

10. Course Structure

Week	Hours	Required learning outcomes	Unit or Subject Name	Learning Method	Evaluation
1	5	Bachelor's	About agricultural tractors - and agricultural tractor functions	Take a look and view the slides	the exams Daily and monthly

2		Bachelor's	Forces used in agricultural operations	Take a look and view the slides	the exams Daily and monthly And
3	5	Bachelor's	The most important methods and means used in transferring and converting movement and energy in agricultural machines and machinery	Take a look and view the slides	the exams Daily and monthly
4		Bachelor's	The fixed and moving parts of the internal combustion engine and the function of each part	Take a look and view the slides	the exams Daily and monthly
5	5	Bachelor's	Tractor engines (fundamentals of internal combustion engine design - cycle of compression and spark engines, both four- and two-stroke)	Take a look and view the slides	the exams Daily and monthly And final reports
6		Bachelor's	Auxiliary devices for the agricultural tractor engine (lubrication device - cooling device - fuel device	Take a look and view the slides	the exams Daily and monthly
7		Bachelor's	Monthly test	Monthly test	Monthly test

8		Bachelor's	Fuel device - air purification device - exhaust device)	Take a look and view the slides	the exams Daily and monthly And final reports daily
9	5	Bachelor's	Transmission devices in the agricultural tractor (clutch - gearbox - vertical transmission device - differential device - final transmission device)	Take a look and view the slides	the exams Daily and monthly And final

10	5	Bachelor's	Means of utilizing power in the agricultural tractor (hydraulic lifting device - power take-off shaft - tension rod - drive pulley)	Take a look and view the slides	the exams Daily and monthly And final
11	5	Bachelor's	Primary tillage machines (dippers, excavator plows, subsoil plows, rotary plows)	Take a look and view the slides	the exams Daily and monthly And final reports daily
12	5	Bachelor's	Secondary tillage machines (disc harrows - harrows)	Take a look and view the slides	the exams Daily and monthly And final reports daily
13	5	Bachelor's	Machines serve the growing crop	Take a look and view the slides	the exams Daily and monthly And final reports daily
14	5	Bachelor's	Agricultural pest control equipment (hydraulic sprayer - air sprayer - manual sprayer - automatic duster)	Take a look and view the slides	the exams Daily and monthly And final reports

15		**Bachelor's**	**Second exam**	**Take a look and view the slides**	**the exams Daily and monthly And final reports**
11. Course Evaluation					

- **Daily exams with multiple-choice questions that require scientific skills.**
- **Daily exams with scientific questions.**
- **Participation grades for competition questions for academic subjects.**
- **Marking homework and reports**
- **- Grades for the student's activity during the lecture and the extent of his commitment**

to regular attendance and absence.

12. Learning and Teaching Sources

1. Book (Pullers and Plant Protection Equipment), prepared by Dr. Lutfi Hussein Muhammad Ali, Assistant Professor of Agricultural Mechanization / College of Agriculture, University of Baghdad, 1986.

2. The book (Agricultural Machinery and Machinery), written by Dr. Engineer Yassin Hashem Al-Tahan and Dr. Engineer Muhammad Jassim Al-Naama / University of Mosul / Department of Agricultural Mechanization, 1988.

Course Description Form

1. Course Name:

Medical and veterinary insects

2. Course Code:

MEVI218

3. Semester / Year:

2023-2024 (First course)

4. Description Preparation Date:

The beginning of the first course

5. Forms of Attendance:

Attending in college

6. Number of Studying Hours (Total) / Number of Units (Total)

75 / 5

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

Name: Dr.Farhan Jasim Mohammed	Email: farhanalhakim@uomisan.edu.iq

8. Course Objectives

Course Objectives	1- knowing the student to medical entomology, the history of medical entomology, epidemiology, disease vectors, and the relationship of vectors to pathogens. Transportation methods for nurses. 2-knowing the student to the insect hosts that transmit pathogens, their medical importance for medical life cycle, and their behavior in quickly .control and diagnosing them. 3-Some arthropods, such as mites and ticks, the most important of , medical, and methods of control.

9. Teaching and Learning Strategies

Strategies	Using modern means to deliver information to students and using field work to learn more about the course methodology, which is part of modern education, so that complete information about the course is available after the student .graduates

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	5	Understanding, perception, practical application	An overview of medical entomology, importance, vector insects, methods of transmitting pathogens, the relationship of pathogens to vertebrates, study of the mouth parts of some arthropods	Lecture and discussion	Oral exams, quizzes and written exams
2nd	5	Understanding, perception, practical application	Epidemiology, transmission and how to detect a relationship with the pathogen, effectiveness and efficiency of the vector, class of insects, types of cockroaches	Lecture and discussion	Oral exams, quizzes and written exams

3rd	5	Understanding, perception, practical application	Pathogens transmitted by arthropods, protozoa, nematodes, bacteria, viruses, order Hemiptera	Lecture and discussion	Oral exams, quizzes and written exam
4th	5	Understanding, perception, practical application	Feeding parts and mouth parts in insects, function of mouth parts in insects, structure of mouth parts in mites and ticks, order of biting lice	Lecture and discussion	Oral exams, quizzes and written exam
5th	5	Understanding, perception, practical application	Medical importance of cockroaches, habits and behavior, life cycle, order Diptera	Lecture and discussion	Oral exams, quizzes and written exam
6th	5	Understanding, perception, practical application	The medical importance of true bugs, bed bugs, habits and life cycle, medical importance, sneaky bugs, health consequences caused by bugs . Myiasis family	Lecture and discussion	Oral exams, quizzes and written exam
7th	5	written exam	First month exam	written exam	written exam
8th	5	Understanding, perception, practical application	The medical importance of lice and fleas, sucking lice, types of lice, the medical importance of lice, fleas, their life cycle, common types, medical importance, the fleas family	Lecture and discussion	Oral exams, quizzes and written exam
9th	5	Understanding, perception, practical application	Mosquitoes, medical importance, life cycle, genera, malaria-carrying mosquitoes, filarial carriers, viruses-carriers, order Siphonaptera	Lecture and discussion	Oral exams, quizzes and written exam
10th	5	Understanding, perception, practical application	Sand fly, medical importance, Leishmania diseases and their types. The stinging Sand fly	Lecture and discussion	Oral exams, quizzes and written exam
11th	5	Understanding, perception, practical application	The medical importance of black flies, the Simuliidae family, the relationship of black flies to nematodes. Classification of arachnids	Lecture and discussion	Oral exams, quizzes and written exam
12th	5	Understanding, perception, practical application	The medical importance of flies that feed on human blood, the Tabanidae fly family, transmission of anthrax, the Glossinidae fly, house flies, camel ticks ،and dog ticks	Lecture and discussion	Oral exams, quizzes and written exam
13th	5	Understanding, perception, practical application	The medical importance of flies that feed on waste, green, blue, and house metal flies, life cycles, mites and ticks, types of soft and hard ticks and their importance, types of mites and their .medical importance and life cycle	Lecture and discussion	Oral exams, quizzes and written exam
14th	5	written exam	Second month exam	written exam	written exam
15th	5	Understanding, perception,	Myiasis and myiasis, sheep-nosed myiasis fly, cowhide myiasis fly, horse	Lecture and discussion	Oral exams, quizzes and

		practical application	stomach myiasis fly, types of myiasis and veterinary importance		written exam

11. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such .as homework, daily, oral, monthly written exams, final written exam, reports, etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Book of Medical and veterinary insects in Iraq - by Dr. Jalil Abu Al-Hab
Main references (sources)	Book of Disease vectors and biotechnology. By Professor Dr. Nadia Abu Jabal
Recommended books and references (scientific journals, reports...)	Medical entomology journals
Electronic References, Websites	All agricultural and environmental science journals sites

Course Description Form

1. urse Name:

Pla Nutrition

2. urse Code:

PLA 15

3. mester / Year:

Se d semester / 2023 - 2024

4. scription Preparation Date:

1. 2)24

5. rms of Attendance:

Ful ne (theoretical lecture/practical lecture)

6. mber of Studying Hours (Total) / Number of Units (Total)

75

7. urse Administrator's Name (mention all, if more than one name)

Na : Karrar Akram Kamil	Email: karar.akram@uomisan.edu.iq

8. urse Objectives

Cou e Obj ives	1- Introducing the student to the concept of plant nutrition - the intersection of nutrition with other agricultural sciences and applications. 2- Study of plant nutrients and their interactions with soil science. 3- Knowing the scientific foundations of fertilization and the factors interfering v n fertilization programs. 4- Exploring the most important problems associated with fertilization, such as l salinity, contamination with chemical fertilizers, and organic agriculture.

9. aching and Learning Strategies

Str egies	1. Theoretical lectures, and the use of textbooks book and PowerPoint. 2. Assigning students to prepare presentations on topics related to the curricul 3. Field visits and scientific trips.

10 ourse Structure

We	Hours	Required Learning Outcomes	Unit or subject name	method Learning	Evaluation m od
1	5	Students learned about: plant nutrition and the plant's nutritional content.	Introduction to plant nutrition and nutrients.	Using the lecture method and displaying data on the Data Show device	Questions discussic
2	5	Students learned about: Soil as a medium for nutrients. Laboratory methods for	Soil as a medium for nutrients.	Using the lecture method and displaying data on the Data Show device	Quiz test at th nd of the lecu

		examining soil and determining element deficiencies.				
3	5	Students learned about: types of soil and their impact on the Availability of the food element.	Nutrient Availability	Using the lecture method and displaying data on the Data Show device	Quiz test at th of the lectu	nd
4	5	Students learned about: absorption of nutrients and theories of absorption. Movement of mineral elements within the soil.	Nutrients uptake	Using the lecture method and displaying data on the Data Show device Conducting a field experiment to grow plants with fertilization at different levels.	Closing ques and discuss Preparing scientific rep the scientific Preparing scientific rep the field expe	ns . on p. on ent
5	5	Students learned about: the representation of elements and their transport within plants.	The role of nutrients within the plant	Using the lecture method and displaying data on the Data Show device	Quiz test at th of the lectu	nd
6	5	Students learned about: the relationship between nutrition and plant diseases.	Nutrition and plant diseases	Using the lecture method and displaying data on the Data Show device	Quiz test at th of the lectu	nd
7	5	<u>First month exam.</u> Students learned about: the symptoms of element deficiency, and how to diagnose them. How to take plant samples for the purpose of conducting laboratory tests for nutritional	Symptoms of element deficiency	Using the lecture method and displaying data on the Data Show device	Questions discussic	

		deficiency.			
8	5	Students learn about hydroponic techniques. Benefits and features of soilless farming (hydroponic)	Hydroponic	Using the lecture method and displaying data on the Data Show device	Closing ques and discuss
9	5	Students learned about: organic fertilizers. How to make compost using aerobic fermentation	Organic fertilizers and compost industry	Using the lecture method and displaying data on the Data Show device Conducting a field visit to experiment with compost manufacturing	Closing ques and discuss Preparing scientific rep the field vi
1	5	Students learned about: types of earthworms. How to make vermicompost.	Vermicompost	Using the lecture method and displaying data on the Data Show device	Quiz test at th of the lect
1	5	Students learned about: fertilization programs and the factors that determine the fertilization program.	Fertilization programs	Using the lecture method and displaying data on the Data Show device	Questions discussic
1	5	Students learned about: How to deal with salty soil. Fertilization programs suitable for saline soils.	Fertilizing saline soils	Providing presentations by students using a data show device on topics of saline soils and alkaline soils.	Student discu after presenti presentati Test Quiz at th of the presen for studen
1	5	Students learned about: some of the materials used in fertilization programs, such as humic acid and valvic acid.	Humic acid	Providing presentations by students using a data show device on topics of saline soils and alkaline soils.	Student discu after presenti presentati Test Quiz at th of the presen for studen

1	5	Students learned about: agricultural gypsum and its uses in land reclamation and its effect on the availability of nutrients.	Agricultural gypsum	Providing presentations by students using a data show device on topics of saline soils and alkaline soils.	Student discu after presenti presentati Test Quiz at tl of the presen for studen
1	5	<u>Second month exam.</u> Students learned about: organic agriculture and the role of fertilization in sustainable agriculture	Sustainable agriculture	Providing presentations by students using a data show device on topics of saline soils and alkaline soils.	Student discu after presenti presentati Test Quiz at tl of the presen for studen

11 ourse Evaluation

<u>The eoretical part, average for the first and second months (30) marks:</u>
The st month: a written exam (25 marks) + Quiz exams (5 marks).
The econd month: written exam (25 marks) + presentations (5 marks).
<u>Pra cal part: Average of the first and second months (20) marks:</u>
The st month: written exam (10 marks) + a report of fertilization experiment (5 marks) + Quiz e
(5 r ks).
The econd month: a written exam (10) marks + a report of composting experiment (5) marks +
exa (5 marks).

12 earning and Teaching Resources

Re red textbooks (cu cular books, if any)	-
Ma eferences (sources)	Plant Nutrition (2015) Handbook of Edited by: Allen V. Barker & David J. Pilbeam
Re nmended books and ref nces (scientific jou ls, reports...)	1- Hydroponics - published by the Agricultural Extension Depart - Ministry of Agriculture - Kingdom of Saudi Arabia. 2- Fermented fertilizer (compost) - published by the Organic Agriculture Research Center in the Qassim Region - Ministry of Agriculture - Kingdom of Saudi Arabia.
Ele onic References, We tes	https://landresources.montana.edu/soilfertility/nutrientdeficienc

Course Description Form

1. Course Name:	
Plant physiology	
2. Course Code:	
PLAP211	
3. Semester / Year:	
Second semester 2023/2024	
4. Description Preparation Date:	
20 / 7 / 2024	
5. Forms of Attendance:	
Attendance	
6. Number of Studying Hours (Total) / Number of Units (Total)	
75 hours / five units	
7. Course Administrator's Name (mention all, if more than one name)	
Name: 1- Salah Abdulhasan Ghailan **2- Wrood Jabar Edain**	**Email: salah.ghilan@uomisan.edu.iq**
8. Course Objectives	
Course Objectives	• To make the student understand most of the different physiological processes that occur inside the plant. • To explain many of the precise philosophical processes that occur at the cellular level. • To explain the practical methods of preparing solutions, their concentrations and proportions. • Make the student understand many of the effective functions performed by the cell or its organelles by conducting simple practical experiments. • The role of inputs such as nutrients in the physiological processes of the plant. • To clarify the physiological differences between plants by dividing them into C3 and C4 plants.
9. Teaching and Learning Strategies	
Strategies	- Using the PowerPoint lecture as a way to deliver information - Guiding students to obtain information from other sources by asking them to submit scientific reports. - Motivating students to use the method of dialogue and logical discussion to reach convincing results. - Activating the practical aspect through applied field practices.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	understanding, perception, practical application	An introduction to plants, the functions of their various organs, and a brief overview of the stages of development of plant physiology.	Lecture and discussion	Verbal tests, quick tests and written exams.
2	5	understanding, perception, practical application	Types of colloidal systems and solutions.	Lecture and discussion	Verbal tests, quick tests and written exams.
3	5	understanding, perception, practical application	General properties of colloidal solutions. Preparation of different concentrations.	Lecture and discussion	Verbal tests, quick tests and written exams.
4	5	understanding, perception, practical application	Diffusion and osmosis phenomena. Buffer solutions and pH measurement	Lecture and discussion	Verbal tests, quick tests and written exams.
5	5	understanding, perception, practical application	Absorption property and theories of water ascent in xylem tissue.	Lecture and discussion	Verbal tests, quick tests and written exams.
6	5	understanding, perception, practical application	Properties of plasmolysis, permeability, absorption and practical experiments to illustrate them.	Lecture and discussion	Verbal tests, quick tests and written exams.
7	5	understanding, perception, practical application	First written exam		

8	**5**	understanding, perception, practical application	The process of transpiration and water loss from plant stomata	Lecture and discussion	Verbal tests, quick tests and written exams.
9	**5**	understanding, perception, practical application	The role of inputs such as nutrients in plant physiolog	Lecture and discussion	Verbal tests, quick tests and written exams.
10	**5**	understanding, perception, practical application	Photosynthesis, methods of measuring its speed, respiration, and plant pigments	Lecture and discussion	Verbal tests, quick tests and written exams.
11	**5**	understanding, perception, practical application	Light and dark reactions in plants.	Lecture and discussion	Verbal tests, quick tests and written exams.
12	**5**	understanding, perception, practical application	Second written exam	Second written exam	Second written exam
13	**5**	understanding, perception, practical application	The difference between C3 and C4 plants.	Lecture and discussion	Verbal tests, quick tests and written exams.
14	**5**	understanding, perception, practical application	Phytohormones of juvenile and aging.	Lecture and discussion	Verbal tests, quick tests and written exams.
15	**5**	understanding, perception, practical application	Flowering and photoperiodism in plants.	Lecture and discussion	Verbal tests, quick tests and written exams.

11. Course Evaluation

The grade is distributed out of 100 according to the tasks assigned to the student, such as daily, verbal and written exams as well as daily activities and reports ….etc.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Fundamentals of Plant Physiology book by Dr. Hashem El-Dessouki.
Main references (sources)	Plant Physiology Book by Dr. Muayad Fadhel Abbas.
Recommended books and references (scientific journals, reports...)	Scientific journals concerned with plant physiology.
Electronic References, Websites	All sites of agricultural journals and Journals related to physiological processes in plants.

Course Description Form

1. Course Name:	
Plant Taxonomy	
2. Course Code:	
Plant Taxonomy	
3. Semester / Year:	
Second Coarse / Second Year	
4. Description Preparation Date:	
2.10.2023	
5. Forms of Attendance:	
Full time (theoretical lecture/practical lecture)	
6. Number of Studying Hours (Total) / Number of Units (Total)	
75 / 5	
7. Course Administrator's Name (mention all, if more than one name)	
Name: Karrar Akram Kamil	Email: karar.akram@uomisan.edu.iq
8. Course Objectives	
Course Objectives	1- Introducing the student to the concept of plant taxonomy - the historical stages of plant classification. 2- Teaching students how to classify and diagnose plants to identify their biological identity for the purpose of finding the best ways to combat pests that affect crops.
9. Teaching and Learning Strategies	
Strategies	1. Theoretical lectures, and the use of the methodological book and PowerPoint. 2. Assigning students to prepare presentations on topics related to the curriculum. 3. Field visits and scientific trips.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Students learned about plant taxonomy, the ages, and the development of this science.	History of taxonomy.	Using the lecture method and displaying data on the Data Show device	Closing questions and discussion
2	5	Students learn about: The objectives of taxonomy. General terms in taxonomy.	Introduction: Objectives of taxonomy	Using the lecture method and displaying data on the data show device.	Test (case) at the end of the lecture
3	5	Students learn about	Classification	Using the	testing the

		classification systems. Taxonomic keys.	**systems**	**lecture method and displaying data on the data show device,**	**end of the lecture**
4	**5**	**Students learn about: the root and its types.**	**The vegetative parts of the plant**	**using the lecture method and displaying the data using the data show device Conduct a field visit to learn about plant roots and their types.**	**Closing questions and discussion**
5	**5**	**Students learned about: the plant stem and its types.**	**The vegetative parts of the plant**	**using the lecture method and displaying the data using the data show device Conduct a field visit to learn about plant stems and their types.**	**Test (coz) at the end of the lecture**
6	**5**	**Students learn about: leaves and their shapes.**	**The vegetative parts of the plant**	**using the lecture method and displaying the data using the data show device Conduct a field visit to learn about plant leaves and their shapes.**	**Test (coz) at the end of the lecture**
7	**5**	**Students learned**	**The vegetative**	**using the**	**Closing**

		about: compound and simple papers.	parts of the plant	lecture method and displaying the data using the data show device Conduct a field visit to identify compound and simple leaves.	questions and discussion
8	5	<u>First month exam:</u> The students learned about: the parts of the flower and the flower rings,	the reproductive parts of the plant,	using the lecture method and displaying the data on the data show device,	a test (coz) at the end of the lecture.
9	5	The students learned about: symmetry in the flower and the floral carpels,	the reproductive parts of the plant,	using the lecture method and displaying data on the data show device,	the closing questions and discussion.
10	5	Students learn about: Al-Asadiya. The floral equation.	The reproductive parts of the plant,	using the lecture method and displaying data using the data show device,	test (coz), end of the lecture
11	5	Second month exam: How to dry the models.	Drying the plant models.	Using the lecture method and displaying the data on the Data Show device Each student was asked to make two dried models of two different plants.	Closing questions and discussion Evaluation of dried models.
12	5	<u>Learn about:</u>	<u>The</u>	<u>Providing</u>	<u>Test (coz) at</u>

		The flowering inflorescence and its types.	**reproductive parts of the plant.**	**presentations to students using the Data Show device. Discussing with the student after presenting the presentation.**	**the end of the presentation for students.**
13	**5**	**Providing students with the skills of preparing presentations and speaking in front of an audience..**	**Presentations**	**Providing presentations to students using the Data Show device for topics related to plant classification. Student discussion after presenting the presentation.**	**Test (coz) at the end of the presentation for students.**
14	**5**	**Providing students with the skills of preparing presentations and speaking in front of an audience..**	**Presentations**	**Providing presentations to students using the Data Show device for topics related to plant classification. Student discussion after presenting the presentation.**	**Test (coz) at the end of the presentation for students.**
15	**5**	**Providing students with the skills of preparing presentations and speaking in front of an audience..**	**Presentations**	**Providing presentations to students using the Data Show device for topics related to plant classification.**	**Test (coz) at the end of the presentation for students.**

				Student discussion after presenting the presentation.	

11. Course Evaluation

<u>The theoretical part, average for the first and second months (30) marks:</u>
The first month: written exam (25 marks) + collage exams (5 marks).
The second month: written exam (25 marks) + presentations (5 marks).
<u>Practical part: Average of the first and second months (20) marks:</u>
First month: Written exam (20 marks).
The second month: dried models (10) marks + cob exams (10) marks.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	**Effendi, Imad al-Din (translator) 2013. Atlas of Plants. Dar Al-Sharq Al-Arabi for Printing, .Publishing and Distribution**
Recommended books and references (scientific journals, reports...)	**Al-Atabi, Jabbar Salman; Khalaf, Muhammad Kamel 20002. Flowering plants for university students. Challenge University - Libya.**
Electronic References, Websites	

Course Description Form

1. Course Name:

Principles of Field Crops

2. Course Code:

PRFC217

3. Semester / Year:

SECOND/Semester/2023 - 2024

4. Description Preparation Date:

5. Forms of Attendance:

Full-time (Theoretical Lecture)

6. Number of Studying Hours (Total) / Number of Units (Total)

5 hours per week for(Theoretical and Lecture), 15 weeks

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

Name: Assistant Prof. Dr. dhurgham sabih Kareem altai	**Email: dhurgham.sabih@uomisan.edu.iq**

8. Course Objectives

Course Objectives	**1- Providing the student with practical and theoretical information on how to follow modern methods for managing all field operations** **2- Teaching the student the basic and supporting sciences for field crops specialization.** **3- Providing the student with practical and theoretical information on managing relevant fields, laboratories and laboratories.**

9. Teaching and Learning Strategies

Strategies	**A- Cognitive objectives** **A1- Teaching students how to deal with the field so that it has modern scientific specifications and methods of managing it.** **A2- Introducing students to how to develop genetic compositions for field crops.** **A3- Enabling the student to know how to deal with laboratory materials and equipment.** **B - The skills objectives of the course** **B1 - Providing the student with the skills of applying scientific methods regarding the management of agricultural fields.** **B2 - Training the student to produce agricultural crops to achieve high productivity.** **B3 - Providing the student with the necessary skills for laboratory tests related to crops and soil and how to give appropriate scientific judgments.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	٥	**Introducing the student to field crops and their advantages**	**Introduction to crop science and recent statistics on food production in the world**	**Theoretical and practical lectures + presentation methods +**	**Daily, monthly and final tests and reports**

				dialogue and discussion	
2	٥	Introducing the student to the importance of field crops	The importance of field crops	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
3	٥	Illustrate and explain methods for classifying field crops	Methods of classifying field crops	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
4	٥	Introducing the student to the environmental factors affecting crop production	Factors affecting crop production (temperature, light, and CO_2)	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
5	٥	Environmental factors affecting crop production	Humidity, rain and water rating	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
6	٥	Environmental factors affecting crop production	Soil, biotic factors, wind and their effect on crops	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
7	٥	Introducing the student to plowing operations and preparing the land for agriculture	Plowing and preparing the land for agriculture	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
8	٥	Introduction to crop service operations	Crop service operations	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
9	٥	Introducing the student to fertilization processes, including the fertilizers used, their types, and methods of adding them	Fertilizers used, their types, and methods of adding them	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
10	٥	Introduction to seeds and grain grading.	Seed and grain grading science	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
11	٥	Introducing students to weeds, their types, and methods of combating them	Weeds, their types and methods of combating them	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
12	٥	Introducing the importance of agricultural rotation and their benefits	Agricultural rotation, their types and benefits	Theoretical and practical lectures + presentation methods +	Daily, monthly and final tests and reports

				dialogue and discussion	
13	٥	Introducing the student to the basics of crop breeding and improvement	Principles of crop breeding and improvement	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
14	٥	Introducing the student to the stages of production and multiplication of improved seeds	Stages of production and multiplication of improved seeds	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
15	٥	Introducing the student to the most important crops grown in Iraq in the form of tables	A brief idea about the most important crops grown in Iraq in the form of tables	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports

11. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as homework, daily, oral, monthly, written exams, reports, *etc*.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Wheat cultivation and production techniques / Gamal Al-Shibini. First edition. Egyptian Library 2009. The scientific book on grain manufacturing / Abbas Hassan Hussein. First edition. University of Baghdad 2009.. Production of field crops, Dr. Salah El-Din Abdel-Razzaq Shafshaq and Dr. Abdul Hamid Al-Sayyid Al-Dababi, 2008, Dar Al-Fikr Al-Arabi, Egypt.. Production of field crops / Dr. Abdul Majeed Al-Ansari, University of Baghdad 1981. Production and improvement of field crops, Dr. Abdul Hamid Ahmed Al-Yunis, 1993, Dar Al-Kutub Directorate for Printing and Publishing - Baghdad.. Crops Grains and legumes (practical part), Dr. Kamel Muhammad Al-Khafaji, University of Baghdad 2009.
Main references (sources)	Production of field crops / Dr. Abdul Majeed Al-Ansari, University of Baghdad 1981. Production and improvement of field crops, Dr. Abdul Hamid Ahmed Al-Yunis, 1993 Directorate of Dar Al-Kutub for Printing and Publishing - Baghdad.. Crops.
Recommended books and references (scientific journals, reports...)	Library Genesis The field crops _ principles and a practice
Electronic References, Websites	Websites, Articles, FAO reports . Agronomy journal.

Course description form

Course Name	
Microbiology	
Course Code	
MICR213	
Semester/year	
First/second semester	
The date this description was prepared	
9/1/2023	
Available attendance forms	
Is mandatory	
Number of study hours (total) / number of units (total)	
65	
Name of the course administrator (if more than one name is mentioned)	
the name . Talal Hussein Saleh email talal196161@uomisan.ed.iq	
Course objectives	
Objectives of the study subject	Identify microorganisms and their basic components, and study the morphological properties of bacteria, including the shape of the bacteria, their aggregations, the pigmentation of the bacteria, the stages of bacterial growth, and methods of controlling them. Detection of microscopic differences and the results of biochemical tests for the purpose of diagnosing the genera and types of bacteria causing the disease, as well as the vital bacteria, based on their distinctive characteristics.
Teaching and learning strategies	
The strategy	• Delivering lectures by asking questions and discussing them with the recipients • Using multiple taxonomic keys according to plant families • Using visual teaching aids such asData show and Hand out • Microscopic and naked eye examination by the recipient Field trips to identify infections caused by bacteria to plants

Course structure

the week	**Evaluation method**	**Learning method**	**Name of the unit or topic**	**Required educational outcomes**	**hours**	**the week**
the first	Written and practical exam	Lecture + practical	Laboratory terms and guidelines used in microbiology	Microbiology and a brief history	5	the first
the second	Exam Editorial	Lecture + practical	Bacteria isolation	Study of the morphologic	5	the second

	And my work			al properties of bacteria		
the third	Exam Editorial And my work	a lecture+practical	Examination of bacterial movement	Bacterial staining and methods used in bacterial counting	5	the third
the fourth	Exam Editorial And my work	a lecture+practical	Growing microorganisms in media	Anatomy of bacteria	5	the fourth
Fifth	Exam Editorial And my work	a lecture+practical	Methods of isolating and growing bacteria in media	Bacterial growth and reproduction	5	Fifth
VI	Exam Editorial And my work	a lecture+practical	Study of morphological characters	Factors affecting bacterial growth	5	VI
Seventh	Exam Editorial And my work	a lecture+practical	The effect of some physical factors on the growth of organisms	Genetic structure of the bacterial cell	5	Seventh
VIII	Exam Editorial And my work	a lecture+practical	The effect of chemical factors on the growth of organisms	Bacterial adaptation	5	VIII
Ninth	Exam Editorial And my work	a lecture+practical	Spread of diseases by bacteria	The antagonistic effect of some agents on bacteria	5	Ninth
The tenth	Exam Editorial And my work	a lecture+practical		Bacterial genetics	5	The tenth
eleventh	Exam Editorial And my work	a lecture+practical	Identify the parts of bacteria	Bioenergy transformations	5	eleventh
twelveth	Exam Editorial And my work	a lecture+practical	Methods of preserving bacteria	Methods of controlling microorganisms	5	twelveth
Thirteenth	Exam	a	Methods of	The	5	Thirtee

	Editorial And my work	lecture+practical	preserving bacteria	relationship of microorganisms to diseases		nth

Course evaluation

Degree distribution from100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.

Learning and teaching resources

Microbiology, composed by a committee of teachers from the Department of Life Sciences, University of Baghdad / College of Science / 1992	Books decided required(methodology)
Microbiology / Dr. Abdullah Al-Issa / Syria / 2005 Diagnostic microbiology Dr. Abdul Nabi Jaweed Al Mamouri millimeter. Ishraq Abd Al-Amir Al-Mamouri 2016	Recommended supporting books and references (scientific journals, reports.)
The cockle	Electronic references, websites

Course Description Form

1-Name of the course:	
Agricultural Extension	
2-Course code/	
AGRE200	
3-Semester/year/	
first semester – 2023-2024	
4-The date this description was prepared:	
9/20/2023	
5-Available forms of attendance /	
6-Number of study hours (total) / Number of units (total) /	
30 hours	
7-Name of the course officer (if more than one name is mentioned) / Professor Alaa Kazem Farhan	
Name: Dr. Alaa Kazem Farhan	**Email: alaa.k.f@uomisan.edu.iq**
8-Course objectives	
Objectives of the study subject	**Introducing students to the importance of agricultural extension in the agricultural .process** • **Informing the student about the distribution of leadership roles in the counseling process.** **Introducing students to the tasks carried out .by an agricultural extension worker** **Introducing students to rural leadership and .their role in the agricultural extension process** **Introducing students to the categories of .adopters of agricultural innovations** **Introducing students to the methods used by introducing new innovations that serve the .agricultural process**
9-Teaching and learning strategies	
The strategy	**-Learning is done through class lectures**

10-Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Hours	week
Questions during the lecture	Questions during the lecture	Definition of agricultural extension science	Introduction to agricultural extension science	2	Week 1
Questions during the lecture	Questions during the lecture	Definition of agricultural guide and its	Agricultural guide...who is he and what are his	2	Week 2

		importance in the agricultural process	**roles?**		
Questions during the lecture	**Questions during the lecture**	**Rural leaders and their importance in the agricultural extension process**	**Rural leaders**	**2**	**Week 3**
Questions during the lecture	**Questions during the lecture**	**General and specific goals and their characteristics**	**Principles and objectives of agricultural extension work**	**2**	**Week 4**
Questions during the lecture	**Questions during the lecture**	**Definition of agricultural extension communication and its methods**	**The guidance communication process and its elements**	**2**	**Week 5**
Questions during the lecture	**Questions during the lecture**	**Confusion - difference in social class**	**Factors affecting the counseling communication process**	**2**	**Week 6**
_____	_____	_____	**First month exam**	**2**	**Week 7**
Questions during the lecture	**Questions during the lecture**	**Definition of new agricultural technology / examples of agricultural technologies**	**New agricultural technology**	**2**	**Week 8**
Questions during the lecture	**Questions during the lecture**	**Definition of evaluation and its multiple stages**	**Evaluation of extension programs**	**2**	**Week 9**
Questions during the lecture	**Questions during the lecture**	**Evaluate organizational structure, personnel, planning, implementation and results**	**Areas of evaluation of extension programs**	**2**	**Week 10**
Questions during the lecture	**Questions during the lecture**	**Guidance methods/types and priorities**	**Ways to adopt modern ideas**	**2**	**Week 11**
Questions during the lecture	**Questions during the lecture**	**Types of adoptees**	**Categories of adopters of new technologies**	**2**	**Week 12**

Questions during the lecture	Questions during the lecture	The role of agricultural extension in developing agriculture and its importance in agricultural development	The place of agriculture in the economy and its place in economic development	2	Week 13
Questions during the lecture	Questions during the lecture	Examples of some applied sciences and their relationship to agricultural extension	The relationship of agricultural extension to some applied sciences	2	Week 14
		_____	Second month exam	2	Week 15

11-Course evaluation

-Distribution of the grade out of 100 according to the tasks assigned to the -0student,such as daily preparation, daily, oral, monthly, written exams, reports, etc.
-Examination of the first month of 20 degrees-
-Second month exam of 20 marks-
-Taking daily surprise exams of 3 grades.

-Extracurricular activities, 4 marks ،
-Final exam of 50 marks

12-Learning and teaching resources

Required textbooks (methodology, if any)	
Main references (sources)	
- -Contemporary agricultural extension, Dr. Ahmed Mohamed / Faculty of Agriculture - Cairo University. -Agricultural Extension, Dr. Ahmed - Galal Owais/Faculty of Specific .Education - Cairo University	Recommended supporting books and references (....(scientific journals, reports

1-Course name:	
Principles of statistics	
2-Course code/second stage	
PRIS201	
3-Semester/year/	
first semester – 2023-2024	
3-The date this description was prepared:	
9/20/2023	
4-Available forms of attendance/in-person	
5-Number of study hours (total) / Number of units (total) /	
75 / 5	
Name of the course officer (if more than one name is mentioned) / Professor Alaa Kazem Farhan	
Name: Dr. Alaa Kazem Farhan	**Email: alaa.k.f@uomisan.edu.iq**
8-Course objectives	
• **Objectives of the study subject**	• **Introducing students to the origins and development of statistics** • **Introducing students to the basic principles of statistics.** • **Introducing students to methods of collecting and presenting data.** • **Introducing students to measures of central tendency and measures of dispersion** • **Introducing students to the simple linear regression equation**
9-Teaching and learning strategies	
The strategy	**Learning is done through class lectures.**

10-Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Hours	week
Questions during the lecture	Questions during the lecture	The nature of statistics	Introduction to statistics	3	Week 1
Questions during the lecture	Questions during the lecture	Introduction to the tabular display of data	Tabular display of data	3	Week 2
Questions during the lecture	Questions during the lecture	Frequency and proportion distribution table	Tabular display of data	3	Week 3
Questions during the lecture	Questions during the lecture	Clustered frequency distribution table	Tabular display of data	3	Week 4

Questions during the lecture	Questions during the lecture	Modified frequency table	Graphical representation of data	3	Week 5
Questions during the lecture	Questions during the lecture	Types of iterative curves	Graphical representation of data	3	Week 6
Questions during the lecture	Questions during the lecture	Histogram	Graphical representation of data	3	Week 7
Questions during the lecture	Questions during the lecture	_____	First month exam	3	Week 8
Questions during the lecture	Questions during the lecture	Calculating the arithmetic mean of classified and unclassified data	Measures of central tendency	3	Week 9
Questions during the lecture	Questions during the lecture	Calculate the arithmetic median of classified and unclassified data	Measures of central tendency	3	Week 10
Questions during the lecture	Questions during the lecture	Calculating the mode for classified and unclassified data	Measures of central tendency	3	Week 11
Questions during the lecture	Questions during the lecture	Calculate the range for classified and unclassified data	Measures of dispersion	3	Week 12
Questions during the lecture	Questions during the lecture	Standard deviation and variance	Measures of dispersion	3	Week 13
Questions during the lecture	Questions during the lecture	Estimate the numerator linear regression equation	Linear regression numerator	3	Week 14
		_____	Second month exam	3	15

11-Course evaluation

-Distribution of the grade out of 40 according to the tasks assigned to the student, such as0daily preparation, daily, oral, monthly, written exams, reports, etc.

The first month exam of 8 marks-

-Second month exam of 8 marks

Conduct daily surprise exams of 4 grades + Final exam of 20 marks-

12-Learning and teaching resources

Required textbooks (methodology, if any)	
Main references (sources)	Introduction to statistics/Dr. Khasha Mahmoud Al-Rawi/ College of Agriculture - University of Mosul.
Recommended supporting books and references (scientific journals, reports....)	Principles of statistics/Dr. Abdel Moneim Morsi Mohamed/ Faculty of Agriculture - Mansoura University.

Description of the academic program

Course name:
Computer Applications 3
Course code
COMA203
Semester/year :
Spring Semester/year2024
Date this description was prepared:
2/1/2024
Available forms of attendance are in person
Total number of study hours / total number of units
30 / 1
Name of the course administrator (if more than one name is mentioned)

Name : ABBAS LUAIBI OBAID	**Email : abbas.alrajhe@uomisan.edu.iq**

Module Aims

1- Guiding the student how to use the computer in a manner compatible with his cultural level
2- Directing the student how to deal with social sites

Teaching and learning strategies

1- Explanation, clarification, and honing general and qualifying skills
2- Urging the student to write simple research using the lecture method to create a state of balance between methodological information and source information.
3- Urging the student to work on practical projects on the calculator and hold discussion circles among the students on the methodology of the subject and distribute the students into groups.
4-Practical lessons in the laboratory
5- The method of self-learning and writing scientific reports, and urging the student to evaluate the answers of his fellow students to develop self-development.

Course structure

Week	hours	required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1+2	4	Chapter One: Operating the Word program 2010 File Burning, Program Interfaces Tapes Home tab, group Horizon, line and paragraph… Paragraph group and Order group And the View tab, the Views group	word	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
3+4	4	Chapter Two / Insert tab, Page group, and Table group, Table Tools tab, Table Design tab, and	word	Practical lectures + direct	Daily, monthly and final tests

		.....Skip tab Graphics set, tools Image, set of links Header and footer group, text group, and symbol group		presentation methods + dialogue and discussion	and reports
5+6	3	Chapter Three/Additional tasks For Microsoft Word, the References and Tables of Contents tab, the Footnotes group, the References, Citations and Captions group, and the Indexing group…. Resource table set, tbui b Correspondence and group creation, merging Correspondence A group of writing and inserting fields Preview results set Review, proofread and language tab And a comment group, a tracking group Changes set and comparison set	word	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
7	3	First exam			
8+9	4	Chapter Four Powerpoint Run it The program interfaces and the File tab Open a presentation file and save a new one Save a stock presentation as Open and close an inventory presentation View and print slides on paper and the Home tab Page setup, theme and background set Slideshow tab h	Power point	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
10+11	4	View tab and Views group Presentation and presentation set Main Show set and set Direction, color and grayscale Zoom in, zoom out and group Help window and instructions Chapter Five / Inserting and adding objects Motions, adding shapes	Power point	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
12+13	4	Inserts tab and Tables group And a set of photos Collection of illustrations and links A set of text and symbols Adding animations to slides and objects The Transitions tab and	Power point	Practical lectures + direct presentation methods + dialogue and	Daily, monthly and final tests and reports

		the Preview group A group is transferred to a slide Set the timing and movements tab A preview group and an animation group		discussion	
14	4	Custom drivetrain and kit The timing is a comprehensive exam as a review and solution Book questions b	Power point	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
15	3	Second exam			
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, .oral, monthly, written exams, reports, etc					

Learning and teaching resources

Required textbooks (methodology, book four)	Computer basics and office applications, Part Two/ Microsoft Office 2010 Ministry of Higher Education and Scientific Research Written by: 1- Professor Dr. Ghassan Hamid Abdel Majeed 2-Professor Dr. Ziad Muhammad Abboud 3-Professor Dr. Muhammad Nasser Al-Tarfi 4-Professor Dr. Safaa Abbas Al-Mamouri 2- International Information Network, the Internet
Main references (sources)	1.*Microsoft PowerPoint 2010 Step by Step*(448 pages; Print ISBN: 978-0-7356-2691-1), by Joyce Cox and Joan Lambert, 2.Beginning Microsoft Word 2010, by T.y Anderson, Guy Hart-Davis 3. PowerPoint 2010 AdvancedSlides, Animation and Layouts. Stephen Moffat, The Mouse Training Company
Recommended supporting books and references (scientific journals, reports....)	
Electronic references, Internet sites	Library Genesis :websites History of the development of computer networks, - objective website: http://mawdoo3.com http://youstaff.blogspot.com: Information and Internet security http://geeklesstech.com : Internet Law Laws for using the - Internet Real-time communication protocols in the Internet (RTP - .SIP), World of Technology website ARPANET logical map, .http://russbellew.com/Documents/Arpanet_sep_1974

Course name:

Principles of animal production

Course code

PRAP202

Semester/year :

Second Semester/year2024

Date this description was prepared:

2/1/2024

Available forms of attendance are in person

Total number of study hours / total number of units

75 / 5

Name of the course administrator (if more than one name is mentioned)

Doaa Ali Hussein

Module Aims

- *Introducing students to the importance of animal production and its principles.*
- *Inform the student about the types of farm animals and their economic importance, such as buffalo, cows, and other livestock, in addition to poultry.*
- *Learn about feeding systems, types of feed, and how to manufacture them.*

Teaching and learning strategies

- Giving lectures by asking questions and discussing them with the recipients
- Using visual teaching aids such as Data show and Hand out
- Field observations of farm animals and field visits to feed manufacturing plants.

Course structure

Week	hours	required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	2 + 3	Introducing students to general information about animal production and its economic importance.	Introduction to animal production.	Theoretical + practical lecture, dialogue and discussion.	Questions during the lecture.
2	2 + 3	Introducing students to the obstacles facing livestock	Introduction to animal production.	Theoretical + practical lecture, dialogue and discussion.	Daily test.
3	2 + 3	Introducing students to livestock and their types	the foundations of livestock husbandry	theoretical & practical lecture, dialogue and discussion,	questions during the lecture
4	2 + 3	Introducing students to dual-purpose cows, local goat and sheep breeds,	the foundations of cattle husbandry	Theoretical + practical lecture, dialogue and discussion.	Daily test.

5	2 + 3	Introducing students to how to establish a sheep and goat breeding project.	The foundations of sheep husbandry	Theoretical + practical lecture, dialogue and discussion.	Daily test.
6	2 + 3	Introducing students to the specifications of local and international buffalo and how to care for them	the foundations of buffalo husbandry	theoretical & practical lecture, dialogue and discussion,	questions during the lecture
7	2 + 3	First exam			
8	2 + 3	Introducing students to poultry projects, broiler chickens and layers	the foundations of poultry	theoretical & practical lecture, dialogue and discussion,	questions during the lecture
9	2 + 3	Introducing students to the types of feedstuffs and their effect on production	fodder	Theoretical + practical lecture, dialogue and discussion.	Daily test.
10	2 + 3	Explanation of animal husbandry health programs.	Animal health programs	theoretical & practical lecture, dialogue and discussion,	questions during the lecture
11	2 + 3	A detailed explanation of raising calves, how to maintain their health, and the most important diseases that affect them.	Raising calves and their health	Theoretical + practical lecture, dialogue and discussion.	Daily test.
12	2 + 3	Introducing students to the importance of animal breeding and selection	Breeding and selection in animal production	Theoretical + practical lecture, dialogue and discussion.	Daily test.
13	2 + 3	Introducing students to the importance of horses and the types of local and imported horses.	Fundamentals of horse breeding	theoretical & practical lecture, dialogue and discussion,	questions during the lecture
14	2 + 3	Introducing students to the most important influences on livestock projects in Iraq.	Factors affecting animal production projects	theoretical & practical lecture, dialogue and discussion,	questions during the lecture

15	2 + 3	Second exam
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, .oral, monthly, written exams, reports, etc		

Learning and teaching resources

Required textbooks (methodology, book four)	
Main references (sources)	
Recommended supporting books and references (scientific journals, reports....)	
Electronic references, Internet sites	

Description of the academic program

Course name:

Computer Applications 4

Course code

COMA206

Semester/year :

Spring Semester/year2024

Date this description was prepared:

2/1/2024

Available forms of attendance are in person

Total number of study hours / total number of units

30 / 1

Name of the course administrator (if more than one name is mentioned)

Name : ABBAS LUAIBI OBAID	**Email : abbas.alrajhe@uomisan.edu.iq**

Module Aims

- ***For the student to become familiar with the history of computer networks and the Internet***
- ***Introducing the student to the importance of computer networks and the Internet***
- ***Introducing the student to the basics of computer networks and the Internet***
- ***Introducing the student to browsing and searching on the Internet***
- ***Introducing the student to electronic messages and conversations***
- ***Introducing the student to the ethics of the Internet world***

Teaching and learning strategies

1- Explanation, clarification, and honing general and qualifying skills

2- Urging the student to write simple research using the lecture method to create a state of balance between methodological information and source information.

3- Urging the student to work on practical projects on the calculator and hold discussion circles among the students on the methodology of the subject and distribute the students into groups.

4-Practical lessons in the laboratory

5- The method of self-learning and writing scientific reports, and urging the student to evaluate the answers of his fellow students to develop self-development.

Course structure

Week	hours	required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1+2	4	Chapter One: Introduction to networks, definition of computer networks, benefits of computer networks Types of computer networks, classification of networks (according to connection method, according to engineering design, according to type	Basics of networks and office applications, Part Four	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports

		of service, according to network scope)			
3+4	4	The World Wide Web (ways to connect to the Internet, Internet protocols, device addresses (IP), website addresses (web pages)...) Data transfer rate / Internet and Extranet / Cloud computing / Cloud computing applications, components of cloud computing, types of cloud computing Benefits and disadvantages of cloud computing	Basics of networks and office applications, Part Four	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
5+6	3	Chapter Two (Browsing and searching the Internet, web browsers, the Internet Explorer browser, components of the Internet Explorer interface) Additional tasks in the browser, searching on the Internet, using search engines, advanced search, searching by customizing the search field, types of sites.	Basics of networks and office applications, Part Four	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
7	3	First exam			
8+9	4	Chapter Three (Electronic messages and conversations, introduction, e-mail, e-mail features, creating a new e-mail account Log in to email, Microsoft Outlook,	Basics of networks and office applications, Part Four	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
10+11	4	Skype chat program, the necessary steps to download the Skype chat program, the process of installing the Skype chat program,Learn about the components of the Skype chat program, the menu	Basics of networks and office applications, Part Four	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports

		bar in the Skype chat program, other parts of the Skype chat program, additional tasks in the Skype chat program.			
12+13	4	Chapter Four: Ethics of the Internet world, Internet law and types of infringements in the digital space, technology ethics, etiquette and ethics of dealing with the Internet, The effects of negative use of the Internet on life and society, information and Internet security, information security,	Basics of networks and office applications, Part Four	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
14	4	Weaknesses in the Internet, security problems, computer vulnerability, computer and information protection	Basics of networks and office applications, Part Four	Practical lectures + direct presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
15	3	Second exam			
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, .oral, monthly, written exams, reports, etc					

Learning and teaching resources

Required textbooks (methodology, book four)	Computer basics and office applications, Part fourth/ Microsoft Office 2010 Ministry of Higher Education and Scientific Research Written by: 1- Professor Dr. Ghassan Hamid Abdel Majeed 2-Professor Dr. Ziad Muhammad Abboud 3-Professor Dr. Muhammad Nasser Al-Tarfi 4-Professor Dr. Safaa Abbas Al-Mamouri 2- International Information Network, the Internet
Main references (sources)	1. Computer basics and office applications, Step by Step(448 pages; Print ISBN: 978-0-7356-2691-1), by Joyce Cox and Joan Lambert, 2.Beginning Microsoft Word 2010, by T.y Anderson, Guy Hart-Davis Stephen Moffat, The Mouse Training Company
Recommended supporting books and references (scientific journals, reports....)	
Electronic references, Internet sites	Library Genesis :websites History of the development of computer networks, - objective website: http://mawdoo3.com http://youstaff.blogspot.com: Information and Internet security

	http://geeklesstech.com : Internet Law Laws for using the - Internet **Real-time communication protocols in the Internet (RTP - .SIP), World of Technology website** **ARPANET logical map,** **.http://russbellew.com/Documents/Arpanet_sep_1974**

Course Description Form

1. Course Name:

English Language 2

2. Course Code:

ENGL207

3. Semester / Year:

2023-2024 (First course)

4. Description Preparation Date:

The beginning of the first course

1. Forms of Attendance:

Attending in college

6. Number of Studying Hours (Total) / Number of Units (Total)

15 / 1

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

Name: Dr.Farhan Jasim Mohammed	**Email: farhanalhakim@uomisan.edu.iq**

8. Course Objectives

Course Objectives	**1- Providing the student with academic writing skills and English grammar** **2-Providing the student with the skill of speaking the English language** **3-Providing the student with the skill of listening to the English language** **4-Providing the student with reading and reasoning in the English language**

9. Teaching and Learning Strategies

Strategies	**Using modern means to deliver information to students and using field work to learn more about the course methodology, which is part of modern education, so that complete information about the course is available after the student .graduates**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	١	Understanding, perception, practical application	Conjunctions tools, prepositions, comprehension	Lecture and discussion	Oral exams, quizzes and written exams
2nd	1	Understanding, perception, practical application	Make of negative, make of question, comprehension	Lecture and discussion	Oral exams, quizzes and written exams
3rd	١	Understanding, perception, practical application	Regular and irregular verbs	Lecture and discussion	Oral exams, quizzes and written exam
4th	١	Understanding, perception,	Tenses in passive voice case: simple tense: present, past future	Lecture and discussion	Oral exams, quizzes and

		practical application			written exam
٥th	١	Understanding, perception, practical application	Tenses in passive voice case: Continuous tense: present, past future	Lecture and discussion	Oral exams, quizzes and written exam
6th	١	Understanding, perception, practical application	Tenses in passive voice case: Perfect tense: present, past future	Lecture and discussion	Oral exams, quizzes and written exam
7th	١	written exam	First month exam	written exam	written exam
8th	١	Understanding, perception, practical application	Tenses in passive voice case: Continuous Perfect tense: present, past future	Lecture and discussion	Oral exams, quizzes and written exam
9th	١	Understanding, perception, practical application	If conditional, types, uses, comprehension	Lecture and discussion	Oral exams, quizzes and written exam
10th	١	Understanding, perception, practical application	Additional: used to, every, else, also, any, some, all, yet	Lecture and discussion	Oral exams, quizzes and written exam
11th	١	Understanding, perception, practical application	Since and for	Lecture and discussion	Oral exams, quizzes and written exam
12th	١	written exam	Second month exam		
13th	١	Understanding, perception, practical application	Common words and phrases, translation English/Arabic	Lecture and discussion	Oral exams, quizzes and written exam
14th	١		Reading and writing skills	written exam	written exam
11th	١	Understanding, perception, practical application	Listen to conversations in English, reading	Lecture and discussion	Oral exams, quizzes and written exam

11. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such .as homework, daily, oral, monthly written exams, final written exam, reports, etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	New headway beginner Liz and John Soars, Paul Hancock
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Access to recent research, articles and studies related to modern learning methods
Electronic References,	All English language learning sites

Third Stage

Course Description Form

1. Course Name:	
Biochemistry	
2. Course Code:	
BIOC300	
3. Semester / Year:	
Second semester 2023/2024	
4. Description Preparation Date:	
2024/4/15	
5. Forms of Attendance:	
In Class Rome	
6. Number of Studying Hours (Total) / Number of Units (Total)	
75 hours / five units	
7. Course Administrator's Name (mention all, if more than one name)	
Name: asaad shamil atiyah	**Email: asaad.shameel@uomisan.edu.iq**
8. Course Objectives	
Course Objectives	**• Identify the science of biochemistry as a term, and provide information about compounds, vital metabolic activities, and chemical structures. • Identify carbohydrates and their types. • Identify proteins and amino acids • Identify fats and fatty acids • Identify the structures, ring shapes, and interactions of proteins, sugars, and fats.**
9. Teaching and Learning Strategies	
Strategies	**1- Using the method of delivering information through lecture 2- Students share information by submitting scientific reports. 3- Training students on the method of logical discussion to reach results.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	introduction. the definition. The importance of studying the cell	introduction	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
2	2	Carbohydrate substances. Definition. Its	Carbohydrate	data show , Electronic whiteboard ,	coes exam, Monthly exam,

		qualities. Its sections. Similarity to sugars. Annular structure.		Scientific discussion	Presentation of a scientific seminar
3	2	Lipids. Definition. Its qualities. Its .sections	Lipids	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
4	2	fatty acids. Their names. Installed. Their interactions.	fatty acids	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
5	2	simple lipids. Its sections. Installed.	simple lipids	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
6	2	Composite lipids. Phospholipids. Its sections and composition. Calactolides. Installed.	Phospholipids	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
7	2	Lipids derived. Definition. Citrullates. Cholesterol. Acids	Lipids derived	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
8	2	proteins. Definition. amino acids. Its sections. Their names. Installed. Their interactions.	proteins	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
9	2	sections of proteins. Definition. Its specifications	protein	data show , Electronic whiteboard ,	coes exam, Monthly exam,

		.with examples		Scientific discussion	Presentation of a scientific seminar
10	2	Shape and structure of protein (the four)shapes	protein	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
11	2	nucleic acids. Definition. The structural unit and its components. Linking with each .other	nucleic acids	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
12	2	Forms of nucleic acids according to the number of phosphate molecules. Types according to the .type of sugar	nucleic acids	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
13	2	Comparison between RNA and DNA. Types of RNA. Helical structure of DNA	nucleic acids	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
14	2	enzymes. Definition. Its specifications. Factors affecting its .operation	enzymes	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
15	2	on paper	Exam	-	-
practical part:					
1	3	Identify materials and supplies for the biochemistry laboratory	biochemistry laboratory	data show , Electronic whiteboard , Scientific discussion	coes exam, Monthly exam, Presentation of a scientific seminar
2	3	Detection of	monosaccharides	data show ,	coes exam,

		monosaccharides, disaccharides, reducing and non-reducing sugars		Electronic whiteboard , Scientific discussion, Conducting experiments in the laboratory	Monthly exam, Presentation of a scientific seminar
3-4	3	Detection of proteins, amino acids and carbohydrates	Proteins and carbohydrates	data show , Electronic whiteboard , Scientific discussion, Conducting experiments in the laboratory	coes exam, Monthly exam, Presentation of a scientific seminar
5	3	Detection of spoilage processes of fats, proteins and sugars	spoilage processes of fats, proteins and sugars	data show , Electronic whiteboard , Scientific discussion, Conducting experiments in the laboratory	coes exam, Monthly exam, Presentation of a scientific seminar
6	3	Calculate carbohydrate concentration	carbohydrate concentration	data show , Electronic whiteboard , Scientific discussion, Conducting experiments in the laboratory	coes exam, Monthly exam, Presentation of a scientific seminar
7	3	methods for estimating proteins	estimating proteins	data show , Electronic whiteboard , Scientific discussion, Conducting experiments in the laboratory	coes exam, Monthly exam, Presentation of a scientific seminar
8-9	3	Identify enzymes and methods for their estimation	enzymes	data show , Electronic whiteboard , Scientific discussion,	coes exam, Monthly exam, Presentation of a

				Conducting experiments	scientific seminar
10 - 11	3	General review	General review	data show , Electronic whiteboard , Scientific discussion, Conducting experiments	coes exam, Monthly exam, Presentation of a scientific seminar
12-15	3	on paper	Exam	-	-

11. Course Evaluation	
Distribution of the grade out of 50 according to the tasks assigned to the student, .such as homework, daily, oral, monthly, written exams, reports, etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Basics of Biochemistry - Sami Muzaffar. Basics of food chemistry - Dr. Basil Kamel Al-Dalali and Dr. Kamel Al-Rikabi
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Scientific journals specialized in biochemistry
Electronic References, Websites	All agricultural and biochemical sciences journal sites

Course Description Form

1. Course Name:

Genetic

2. Course Code:

GENE311

3. Semester / Year:

2023-2024

4. Description Preparation Date:

The first course 2023-2024

5. Forms of Attendance:

Full time (theoretical lecture/practical lecture)

6. Number of Studying Hours (Total) / Number of Units (Total)

Two hours/number of units 3.5

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

Name: wurood jabbar idan	Email:wuroodjabbar3@gmail.com

8. Course Objectives

Course Objectives	The curriculum included a general study in genetics. And the history of discovery Genetics. Description of the cell and its components, focusing on the nucleus The genetic material contains a description of Mendelian inheritance and its laws. And its branches. Then delve into the topic of molecular genetics Nucleic acids and their details. Protein description and how to copy And the production of proteins. Describing enzymes and describing mutations Genetic • .... The student reviews his information about genetics • •..a need for this information over a period of time

9. Teaching and Learning Strategies

Strategies	The modern teaching strategy includes achieving learning objectives in general and teaching genetic concepts in particular The difficulties faced by the student in understanding and acquiring the concepts of heredity and molecular inheritance, and treating the difficulties By defining the concepts of genetics and helping students acquire the correct genetic concepts • Methods of dialogue and discussion

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Genetics	Introduction to Genetics Allele Allele and gene	Using the lecture	Email:

			and gene	method and displaying data	
2	5	Mendel an Genetics	Mendel-First Law Mendel Second Law	Using the lecture method and displaying data	Email:
3	5	Modified Ratios of First Mendel Law and Gene Interaction	Hybrid Pure Recessive +Dominant	Using the lecture method and displaying data	Email:
4	5	Modified Ratios of second Mendel Law and Gene Interaction	Lethal Genes and Incompletely Dominance	Using the lecture method and displaying data	Email:
5	5	Epistasis	Complementary Genes Recessive epistasis Duplicate genes Duplicate Recessive Genes	Using the lecture method and displaying data	Email:
6	5	First month exam			Email:
7	5	Cell Division	Introduction cell division	Using the lecture method and displaying data	Email:
8	5	Cell Division Meiosis	Meiosis - phase	Using the lecture method and displaying data	Email:
9	5	Cell Division Mitosis	phase -Mitosisv	Using the lecture method and displaying data	Email:
10	5	Genotype-Phenotype Interaction	Sources of Variations in Plants	Using the lecture method and displaying data	Email:
11	5	Quantitative Traits Qualitative Traits	• HERTABILITY INHERITANCE	Using the lecture method and displaying data	Email:
12	5	Heredity and	What the the Heredity	Using the lecture	Email:

		Environment	**and Environment and ratios**	**method and displaying data**	
13	**5**	**Chromosome Mapping**	**Chromosome Mapping**	**Using the lecture method and displaying data**	
14	**5**	**Penetrance and Expressivity**		**Using the lecture method and displaying data**	
15	**5**	**Second month exam.**			

11. Course Evaluation

Distribution of the grade out of 50 according to the tasks assigned to the student, .such as homework, daily, oral, monthly, written exams, reports, etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Mycology 1	
2. Course Code:	
MYCO312	
3. Semester / Year:	
2023-2024	
4. Description Preparation Date:	
2023/ 10/ 10	
5. Forms of Attendance:	
Mandatory attendance	
:6. Number of Studying Hours (Total) / Number of Units (Total)	
75 hours	
7. Course Administrator's Name (mention all, if more than one name)	
Name: Dr. Ali Athafah Tomah	Email: ali_athafah@uomisan.edu.iq
8. Course Objectives	
Course Objectives	• Providing students with the basics and lectures related to the subject • Know the main characteristics of fungal groups • Preparing the student with the theoretical and practical aspects of fungi
9. Teaching and Learning Strategies	
Strategies	Providing students with additional basics related to the - outcomes of thinking and analysis Forming a national group to discuss various agricultural topics - Asking thinking questions during lectures, including (what, - how, when, and why) - Preparing students' homework assignments that require self-explanation in causal ways

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2+3=5	undergraduate	History of Mycology	Theoretical study and slide presentation	Daily testing
2	2+3=5	undergraduate	General characteristics of fungi		Daily testing
3	2+3=5	undergraduate	Reproduction of Fungi		Daily testing
4	2+3=5	undergraduate	Classification of Fungi		Daily testing
5	2+3=5	undergraduate	Kingdom: true fungi		Daily testing
6	2+3=5	undergraduate	Division: True fungi		Daily testing
7	2+3=5		First Exam		Monthly exam
8	2+3=5	undergraduate	Chytridiomycota		Daily testing
9	2+3=5	undergraduate	of Traits and features		Daily testing

			Chytridiomycota		
10	2+3=5	undergraduate	Order and Family of Chytridiomycota		Daily testing
11	2+3=5	undergraduate	of Traits and features Zygomycota		Daily testing
12	2+3=5	undergraduate	Order and Family of Zygomycota		Daily testing
13	2+3=5	undergraduate	of Traits and features Ascomycota		Daily testing
14	2+3=5	undergraduate	Order and Family of Ascomycota		Daily testing
15	2+3=5		Second exam		Monthly exam

11. Course Evaluation

Distribution of the grade out of 50 according to the tasks assigned to the student, .such as homework, daily, oral, monthly, written exams, reports, etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Fungi: Ibrahim Aziz Al-Suhaili and others (1982)** **Foundations of modern mycology: Mahmoud Ibrahim Al-Kilani (2001)**
Main references (sources)	**The World of Fungi: Ahmed Muhammad Ali (1998)** **Basics of Mycology: Abdullah Nasser Abu Haila (1987)**
Recommended books and references (scientific journals, reports...)	**The basics of fungi and their plant diseases, Mahdi (Majeed Al-Shukri (1991)** **Fungal plant diseases. Abdul Aziz Majeed Nakhilan(2010)** **Arab Journal of Agricultural Sciences**
Electronic References, Websites	**1- MYCOBANK Database https://www.mycobank.org** **2- All About Fungi https://www.mycolog.com**

Course Description Form

1. Course Name:

Insect physiology

2. Course Code:

INSP313

3. Semester / Year:

First semester 2023/2024

4. Description Preparation Date:

٢٠٢٤/ ١/ ١٥

5. Forms of Attendance:

Full time (theoretical lecture/practical lecture)

6. Number of Studying Hours (Total) / Number of Units (Total)

75/

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

Name:Ali Hassan	**Email: ali.h.h@uomisan.edu.iq**

8. Course Objectives

Course Objectives	**• • • Giving the student an idea about the functions and structure of tissues, organs, and organs in the insect's body.** **• • Give an idea about the structure of the body wall and what its most important functions are.** **• • Knowing the secretory system of enzymes and everything related to the hormonal system and giving an idea about insect pheromones.**

9. Teaching and Learning Strategies

Strategies	**1- Use the method of delivering information through lecture** **2- Students participate in obtaining information by requesting seminars and scientific reports** **3- Training students on the method of logical discussion to reach results** **4- Learning through applied field practices .**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Understanding, perception	General concepts about physiology	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
2	5	Understanding, perception	Body wall in insects	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams

3	5	Understanding, perception	Moulting and its importance in insects	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
4	5	Understanding, perception	Digestive system in insects	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
5	5	Understanding, perception	Circulatory system	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
6	5	Understanding, perception	Respiratory system	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
7	5	Written exam	Written exam	Written exam	Written exam
8	5	Understanding, perception	Excretion in insects	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
9	5	Understanding, perception	Reproductive system	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
10	5	Understanding, perception	Nervous system	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
11	5	Understanding, perception	The hormonal system and its importance in insects	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
12	5	Written exam	Written exam	Written exam	Written exam
13	5	Understanding, perception	General concepts about pheromones	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
14	5	Understanding, perception	Comparison between the	Lecture and discussion	Oral exams, seminars,

			hormonal and pheromone systems		Exams Quick(coz) and written exams
15	5	Understanding, perception	A review general	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams

11. Course Evaluation	
Distribution of the grade out of 50 according to the tasks assigned to the student, such as homework, .daily, oral, monthly, written exams, reports, etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**Insect physiology / Dr. Thabet Al-Darkzali**
Main references (sources)	**Insect physiology / Dr. Wajih Kassis, Dr. Nisreen Qutaish**
Recommended books and references (scientific journals, reports...)	**Entomology / Sidrak Gault**
Electronic References, Websites	**All websites of scientific journals and universities interested in this aspect**

Course Description Form

1. Course Name:

Environmental Science

2. Course Code:

ENVS314

3. Semester / Year:

First semester / 2023 - 2024

4. Description Preparation Date:

18.12.2023

5. Forms of Attendance:

Full time (theoretical lecture/practical lecture)

6. Number of Studying Hours (Total) / Number of Units (Total)

75 / 5

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

Name: Karrar Akram Kamil	Email: karar.akram@uomisan.edu.iq

8. Course Objectives

Course Objectives	1- Introducing the student to the concept of ecology - the sections of ecology, Environmental components, and the relationships between living organisms. 2- Study of ecosystems and the balance between animal and plant species and non-living components. 3- Exploring the most important industrial environmental changes, their causes and risks, such as global warming, the ozone hole, drought, and desertification.

9. Teaching and Learning Strategies

Strategies	1. Theoretical lectures, and the use of the textbooks and PowerPoint. 2. Assigning students to prepare presentations on topics related to the curriculum. 3. Field visits and scientific trips.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Students learn about: what ecology is - the importance of ecology - the relationship of ecology to other sciences.	Introduction to ecology	Using the lecture method and displaying data on the Data Show device	Questions and discussion
2	5	Students learn about: definition of the ecosystem - types of ecosystems - living and non-living components of the ecosystem.	Ecosystem and its components	Using the lecture method and displaying data on the Data Show	Quiz test at the end of the lecture

				device	
3	5	Students learn about: the cycles of some compounds and elements in nature (water, carbon, phosphorus, nitrogen)	Cycles of materials and elements in nature	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture
4	5	Students learn about: components of the abiotic environment - climate factors (temperature, humidity, precipitation, atmospheric pressure, light and wind)	Climatic environmental factors	Using the lecture method and displaying data on the Data Show device Conducting a scientific trip to the Meteorology Department and learning about the devices and techniques used. Conduct a field experiment on the effect of light on plants.	Closing questions and discussion Preparing a scientific report on the scientific trip Preparing a scientific report on the field experiment
5	5	Students learn about: climatic regions around the world and the characteristics of each region.	Climatic regions around the world	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture
6	5	Students learned about: the Lithosphere and its layers - types of soils - organic matter in the soil - the microbial community in the soil.	Non-living environmental factors - soil	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture
7	5	Students learned about: the Hydrosphere - the forms of water presence in nature - the types of aquatic ecosystems in nature.	Non-living environmental factors - water	Using the lecture method and displaying data on the Data Show device	Questions and discussion
8	5	First month exam. Students learned about:	Living environment	Using the lecture	Quiz test at the end of

		the living components of the environment - ecological relationships (competition, predation, symbiosis, coexistence, parasitism)	factors and the interaction between them	method and displaying data on the Data Show device	the lecture
9	5	Students learned about: the concept of the ecosystem - the role of energy in the ecosystem - types of ecosystems - the concept of environmental balance.	Ecosystems and environmental balance	Using the lecture method and displaying data on the Data Show device Conducting a field visit to study the plant community	Closing questions and discussion Preparing a scientific report for the field visit
10	5	Students learned about: the concept of the food chain and food web - environmental pyramids.	Food chain and ecological pyramids	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture
11	5	Students learned about: Botanical regions around the world - geographical features of botanical regions.	Plant regions around the world	Using the lecture method and displaying data on the Data Show device	Questions and discussion
12	5	Students learned about: the most important environmental problems in terms of causes, effects, and treatment methods (air pollution - soil pollution - water pollution)	Current environmental problems and environmental pollution	Requesting students to submit presentations using a data show device on various topics related to environmental problems	Student discussion after presentation
13	5	Students learned about: the most important environmental problems in terms of causes, effects, and treatment methods (ozone hole - acid rain - pesticide pollution - loss of biodiversity)	Current environmental problems and environmental pollution	Requesting students to submit presentations using a data show device on various topics related to environmental problems	Student discussion after presentation

14	5	Students learned about: the concept of global warming - climate change - greenhouse gases and their sources - the effects of global warming - methods of treating and reducing the problem.	global warming & climate change	Using the lecture method and displaying data on the Data Show device	Questions and discussion
15	5	<u>Second month exam.</u> Students learned about: the concept of sustainability - the green economy	sustainability	Using the lecture method and displaying data on the Data Show device	Questions and discussion

11. Course Evaluation

<u>The theoretical part, average for the first and second months (30) marks:</u>
The first month: a written exam (25 marks) + Quiz exams (5 marks).
The second month: written exam (25 marks) + presentations (5 marks).
<u>Practical part: Average of the first and second months (20) marks:</u>
The first month: written exam (10 marks) + academic trip report (5 marks) + Quiz exams (5 marks).
The second month: a written exam (10) marks + a report on the experiment on the effect of light on plants (5) marks + a report on the field visit to study the plant community (5) marks.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Ecology Dr.. Abdel Khalil Fadil and Dr. Alwan Jassim Al-Waeli University of Baghdad 1985
Main references (sources)	Environmental Science by S. C. SANTRA Fundamental of Ecology by E. P. ODUM
Recommended books and references (scientific journals, reports...)	-
Electronic References, Websites	-

Course Description Form

1. Course Name:

Plant Breeding

2. Course Code:

PLAB315

3. Semester / Year:

2023-2024

4. Description Preparation Date:

5. Forms of Attendance:

6. Number of Studying Hours (Total) / Number of Units (Total)

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

Name:wurood jabbar idan Najlaa zeki Manwar	**Email: wuroodjabbar3@gmail.com**

8. Course Objectives

Course Objectives	**Introducing the science of plant breeding and its importance Methods of plant breeding Difficulties facing plant breeders when implementing breeding programs modern breeding methods used to improve plant characteristics •**

9. Teaching and Learning Strategies

Strategies	**1. Theoretical lectures, and the use of the textbooks and PowerPoint. 2. Assigning students to prepare presentations on topics related to the curriculum. 3. Field visits and scientific trips.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	plant breeding	Introduction to plant breeding	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture
2	5	Reproductive systems in	Sexual reproduction and a Sexual reproduction	Using the lecture method and	Quiz test at the end of the lecture

		plants		displaying data on the Data Show device	
3	5	Pollination in plants	Self Pollination+ Cross pollination	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture
4	5	Genetic differences in plants	Environmental Variation Genetic Variation	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture
5	5	Infertility and self-incompatibility	Sterility and Incompatibility	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture
6	5	Physiology of Self Sterility	Gametophytic determination	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture
7	5	Male sterility and its relationship to plant breeding	Male sterility and its relationship to plant breeding	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture
8	5	Cytoplasmic infertility	Type of Cytoplasmic infertility	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture
9		Genetic similarity and its danger to crops	natural and artificial replication	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture

10		Chromosomal duplication	duplication Euoploidy and Aneuoploidy	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture
11		Plant breeding methods	Selection methods, importation methods and acclimatization Selection and Primiray Origin of Center	Using the lecture method and displaying data on the Data Show device	Quiz test at the end of the lecture

11. Course Evaluation

Distribution of the grade out of 50 according to the tasks assigned to the student, such .as homework, daily, oral, monthly, written exams, reports, etc
a written exam (25 marks) + Quiz exams (5 marks).
a written exam (20) marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:

Apiculture

2. Course Code:

APIC319

3. Semester / Year:

Secand semester 2023/2024

4. Description Preparation Date:

٢٠٢٤/ ١/ ١٥

5. Forms of Attendance:

Full time (theoretical lecture/practical lecture)

6. Number of Studying Hours (Total) / Number of Units (Total)

75/

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

Name:Ali Hassan	Email: ali.h.h@uomisan.edu.iq

8. Course Objectives

Course Objectives	The course aims to provide the student with the basic concepts and skills of beekeeping and provide him with information and modern methods for producing honey and other hive products. The student is also provided with important information for establishing and managing apiaries and identifying the most important plants that bees graze on. The course also includes identifying the most important bee pests and diseases.

9. Teaching and Learning Strategies

Strategies	1- Use the method of delivering information through lecture 2- Students participate in obtaining information by requesting seminars and scientific reports 3- Training students on the method of logical discussion to reach results 4- Learning through applied field practices .

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Understanding, perception	The economic importance of beekeeping	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
2	5	Understanding, perception	The bee sect	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written

					exams
3	5	Understanding, perception	The bees and the most important external organs	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
4	5	Understanding, perception	Anatomy and functions of the internal organs of bees	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
5	5	Understanding, perception	Types of honey bees and their breeds	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
6	5	Understanding, perception	Establishing and managing apiaries	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
7	5	Written exam	Written exam	Written exam	Written exam
8	5	Understanding, perception	Swarming and migratio	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
9	5	Understanding, perception	Laying worker	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
10	5	Understanding, perception	Beehive products	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
11	5	Understanding, perception	Enemies of bees	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
12	5	Written exam	Written exam	Written exam	Written exam
13	5	Understanding, perception	Bee diseases	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
14	5	Understanding, perception	Problems of	Lecture and	Oral exams,

			beekeeping in southern Iraq	discussion	seminars, Exams Quick(coz) and written exams
15	5	Understanding, perception	A review general	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams

11. Course Evaluation	
Distribution of the grade out of 50 according to the tasks assigned to the student, such as homework, .daily, oral, monthly, written exams, reports, etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Beekeeping and silkworms / Dr. Louay Karim Al-Naji
Main references (sources)	Beekeeping and hive products in food / Arif Salem
Recommended books and references (scientific journals, reports...)	Honey bees / Abdul Latif Muhammad Abbas
Electronic References, Websites	All websites of scientific journals and universities interested in this aspect

Course Description Form

1. Course Name:	
Nematodes	
2. Course Code:	
NEMA320	
3. Semester / Year:	
2023-2024 (Second course)	
4. Description Preparation Date:	
The beginning of the second course	
5. Forms of Attendance:	
Attending in college	
6. Number of Studying Hours (Total) / Number of Units (Total)	
75 / 5	
7. Course Administrator's Name (mention all, if more than one name)	
Name: Dr.Ahmed malik jumaah	Email: mr.ahmad@uomisan.edu.iq
8. Course Objectives	
Course Objectives	Introduction to caecilians to learn about their history • • Identify its effects on plants and its mechanism of action
9. Teaching and Learning Strategies	
Strategies	Using modern means to deliver information to students and using field work to learn more about the course methodology, which is part of modern education, so that complete information about the .course is available after the student graduates

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	To provide the student with a detailed introduction to nematodes and what nematodes mean.	Introduction to nematodes	Using the lecture method and displaying data using the Data Show device	Questions and discussion
2	2	Learn about the history of the discovery of nematodes and the cases of their appearance in the world	History of nematodes	Using the lecture method and displaying data using the Data Show device	Questions and discussion
3	2	Explaining the division of nematodes according to the nature of their life	Nematode division	Using the lecture method and displaying data using the Data Show device	Questions and discussion
4	2	Explaining the mechanism	Reproduction	Using the lecture	Discussion

		and methods of reproduction and the appropriate conditions for it	**in nematodes**	**method and displaying data using the Data Show device**	**and end-of-lecture test**
5	**2**	**Explaining the mechanism of movement of nematodes and their types with examples**	**Movement in nematodes**	**Using the lecture method and displaying data using the Data Show device**	**Discussion and testing of students**
6	**2**	**Explaining the mechanism of feeding according to the type of nematode and what are the methods used for that**	**Nutrition in nematodes**	**Using the lecture method and displaying data using the Data Show device**	**Questions and discussion**
7	**2**	**A detailed explanation of the male and female reproductive system and its importance in the diagnosis process**	**The reproductive and excretory system**	**Using the lecture method and displaying data using the Data Show device**	**Questions and discussion**
8	**2**	**Reviewing the modern classifications of free and parasitic nematodes according to order, family and genus**	**Nematode classification**	**Using the lecture method and displaying data using the Data Show device**	**Making reports on the latest classifications**
9	**2**	**Explaining the important symptoms of plant-parasitic nematodes and observing them visually and in the field**	**Symptoms of infection on the plant**	**Using the lecture method and displaying data using the Data Show device**	**Field test to identify symptoms**
10	**2**	**Identifying the most important families, genera and species that infect plants**	**Parasitic species of nematodes**	**Using the lecture method and displaying data using the Data Show device**	**Questions and discussion in the laboratory**
11	**2**	**Identify the important species of the genus *Meloidogyne* spp**	**Types of the genus *Meloidogyne* spp**	**Using the lecture method and displaying data using the Data Show device**	**Questions and discussion in the laboratory**
12	**2**	**Identify the important species of the genus *Pratylenchus* spp**	**Types of the genus *Pratylenchus* spp**	**Using the lecture method and displaying data using the Data Show device**	**Questions and discussion in the laboratory**
13	**2**	**Identify the important species of the genus *Tylinchida* spp**	**Types of the genus *Tylinchida* spp**	**Using the lecture method and displaying data using the Data Show device**	**Questions and discussion in the laboratory**
14	**2**	**Identify the modern methods used to prevent plant-parasitic nematodes**	**Methods of nematode prevention**	**Using the lecture method and displaying data using the Data Show device**	**Preparing reports on prevention methods**

15	2	Explain and list the methods of controlling plant-parasitic nematodes	Methods of controlling nematode	Using the lecture method and displaying data using the Data Show device	Preparing a report and an experiment to combat nematodes

11. Course Evaluation

Distribution of the grade out of 50 according to the tasks assigned to the student, .such as homework, daily, oral, monthly, written exams, reports, etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**-**
Main references (sources)	**Nematology book, Nematodes in the Arab World**
Recommended books and references (scientific journals, reports...)	**Nematology Journal**
Electronic References, Websites	**Journal of Nematology, Plant parasitic nematode**

Course Description Form

1. Course Name:

Biotechnology

2. Course Code:

BIOT321

3. Semester / Year:

Second semester 2023-2024

4. Description Preparation Date:

٢٠٢٤/١/٢٠

5. Forms of Attendance:

Mandatory

6. Number of Studying Hours (Total) / Number of Units (Total)

65

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

Name: Assisst Prof.Dr. abdulkareem kassim jabar	**Email: abdulkareemalmolla@gmail.com**

8. Course Objectives

Course Objectives	**• Teaching students the basics of genetic sciences related to horticulture • Teaching the student methods of consolidating protoplasts • Teaching students about the nature of genetic material • Teaching students what plasmids are • Teaching students methods of gene transfer • Teaching students methods for detecting transformed cells • Teach students the steps followed to reach a transformed plant**

9. Teaching and Learning Strategies

Strategies	**Enable the student how to obtain physical camels • Enabling students to obtain knowledge and understanding of • genetic engineering Enabling students to obtain knowledge and understanding of • the cytological basis of the cell Enable students to obtain knowledge and understanding of how • to create genetic transformation in horticultural crops Enabling students to obtain knowledge and understanding of • methods for detecting transformed tissues Enabling students to obtain knowledge and understanding • about the nature of genes, their structure, and their relationship to carrying hereditary traits**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Know the history of	Historical	Lecture +	Written and

		plant biotechnology	introduction and applications of biotechnology	practical	practical exam
2	5	Learn about the historical introduction and applications of biotechnology	the historical introduction and applications of biotechnology	Lecture + practical	Written and practical exam
3	5	Identify the nature of genetic material and its replication	The nature and multiplication of genetic material	Lecture + practical	Written and practical exam
4	5	Identify gene expression in plants	Gene expression in plants	Lecture + practical	Written and practical exam
5	5	Identify the gene clone	Gene clone	Lecture + practical	Written and practical exam
6	5	For the student to learn about cloning vectors	Clone vectors	Lecture + practical	Written and practical exam
7	5	The student learns the basics of genetic engineering in plants	Genetic engineering in plants	Lecture + practical	Written and practical exam
8	5	The student learns to stimulate callus growth	Genetic transformation in plants and its applications	Lecture + practical	Written and practical exam
9	5	The student will learn what genetic transformation is in plants and its applications	Genetic transformation using Agrobacterium	Lecture + practical	Written and practical exam
10	5	To learn about methods of direct gene transfer into plants	Methods of direct gene transfer into plants	Lecture + practical	Written and practical exam
11	5	The student learn the polymerase chain reaction and its applications	Polymerase chain reaction and its applications	Lecture + practical	Written and practical exam
12	5	The student will be familiar with DNA markers in plants, their types and applications	DNA markers in plants, their types and applications	Lecture + practical	Written and practical exam
13	5	Teaching the student bio-safety rules	Biosafety rules	Lecture + practical	Written and practical exam

14					
15					

11. Course Evaluation

Distribution of the grade out of 50 according to the tasks assigned to the student, .such as homework, daily, oral, monthly, written exams, reports, etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	**Fundamentals of Biotechnology, written by Dr. Ali Ibrahim Ali Obaida and Dr. Ahmed Abdel Fattah Mahmoud**
Recommended books and references (scientific journals, reports...)	**Plant Biotechnology T.K.R. Translated by Kazem Ibrahim Al-Sumaidaie and Dr. Qais Jamil Al-Salhi**
Electronic References, Websites	**Actahort.come** **Ashs.org** **Springler**

Course Description Form

1. Course Name:

DESIGN AND ANALYSIS OF EXPERIMENTS

2. Course Code:

DEAE301

3. Semester / Year:

FIRST/Semester/2023 - 2024

4. Description Preparation Date:

5. Forms of Attendance:

Full-time (Theoretical Lecture)

6. Number of Studying Hours (Total) / Number of Units (Total)

5 hours per week for(Theoretical Lecture), 15 weeks

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

Name: Assistant Professor Dr. dhurgham sabih Kareem altai	Email: dhurgham.sabih@uomisan.edu.iq

8. Course Objectives

Course Objectives	Graduating students capable of: • Working in the field of designing agricultural experiments, they have theoretical and applied knowledge regarding the design subject. • Obtaining the skills required for post-graduate studies plan • Collecting, tabulating and summarizing data. • Conduct statistical tests • Discussing and interpreting results and making decisions • Using modern methods and statistical programs that contribute to the design of agricultural experiments and that are reflected in its various production characteristics. • Providing students with work skills in scientific and research fields and studying the science of designing and analyzing experiments and its relationship to designing successful experiments that contribute to the success of livestock projects.

9. Teaching and Learning Strategies

Strategies	١ - Enabling students to think and analyze topics related to the intellectual framework of the Design and Analysis of Experiments course. ٢ - Enabling students to think and analyze topics related to ways to design successful experiments related to increasing productivity. ٣ - Design and analysis of experiments is a branch of statistics that is concerned with applying the statistical method, and one of the important topics in research planning is managing and conducting a specific experiment to obtain data that can be analyzed and reaching a specific conclusion through it, which includes collecting data, arranging it, reducing it, and then conducting specific statistical tests that are used. It makes decisions about the objectives that the experiment is designed to study.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Introducing students to general information about design science and regression analysis	Introduction, measures of concentration, arithmetic mean	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
2	5	Introducing students to the properties of the arithmetic mean, median, and mode	Properties of the arithmetic mean, median, and mode	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
3	5	Introducing students to some standards	Measures of absolute dispersion, range, variance, standard deviation, standard error	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
4	5	Introducing students to how to calculate metrics	Measures of relative dispersion, coefficient of relative variation, standard score	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
5	5	Relative dispersion and coefficient of variation	Analysis of variance, mathematical model equation	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
6	5	Introducing students to the components of the analysis of variance table	Components of an analysis of variance table	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
7	5	Explain and explain the components of a completely randomized design	Completely randomized design	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
8	5	A detailed explanation of how to calculate values and equations	Various examples of completely randomized design	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
9	5	A detailed explanation of the most important tests between arithmetic averages and finding differences	Test of means, test of least significant difference	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
10	5	Explanation of the variance and standard deviation of the difference between the means of two parameters	Variance and standard deviation of the difference between the means of two parameters	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
11	5	A detailed explanation of the Duncan test, the least significant range test	Duncan test, least significant range test	Theoretical and practical lectures + presentation	Daily, monthly and final tests and reports

				methods + dialogue and discussion	
12	5	A detailed explanation of the completely randomized block design	Randomized complete block design	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
13	5	A detailed explanation of missing value estimation and the relative efficiency of complete random segments	Estimating the missing value in the case of completely randomized blocks, the relative efficiency of the completely randomized design compared to the completely randomized design	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
14	5	A detailed explanation of the Latin square design	Latin square design	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports
15	5	A detailed explanation of estimating the missing value in the case of the Latin square design, and the relative efficiency of the Latin square design	Estimating the missing value in the case of the Latin square design, the relative efficiency of the Latin square design and comparison with the completely randomized design and the block design	Theoretical and practical lectures + presentation methods + dialogue and discussion	Daily, monthly and final tests and reports

11. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as homework, daily, oral, monthly, written exams, reports, *etc*.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Khashi Mahmoud Al-Rawi and Abdul Aziz Muhammad Khalaf Allah (1980). Design and analysis of agricultural experiments - Ministry of Higher Education and Scientific Research - University of Mosul - Republic of Iraq.**
Main references (sources)	**1- Ahmed Obada Sarhan (1983). Design and analysis of experiments - University Books House - Cairo - Arab Republic of Egypt. 2- Naeem Thani Al-Muhammad, Khashi Mahmoud Al-Rawi, Moayad Ahmed Younis and Walid Khudair Al-Marani (1989). Principles of Statistics - Dar Al-Kutub Foundation for Printing and Publishing - University of Mosul - Iraq. 3- Mohamed Abdel Moneim's wealth (2004). Design and analysis of experiments – Anglo Egyptian Library - Arab Republic of Egypt.**
Recommended books and references (scientific journals, reports...)	**Ph.D and Msc. theses. Design and analysis of experiments**
Electronic References, Websites	

Course Description Form

1. Course Name:	
Plant Pathology	
2. Course Code:	
PLAP317	
3. Semester / Year:	
٢٠٢٤-٢٠٢٣	
4. Description Preparation Date:	
beginning of the first course	
5. Forms of Attendance: in-person	
6. Number of Studying Hours (Total) / Number of Units (Total)	
75 / 5	
7. Course Administrator's Name (mention all, if more than one name)	
Name: Assist. Prof.dr. Qusai Hattab Madhi	**Email: qusay.hattab@uomisan.edu.iq**
8. Course Objectives	
Course Objectives	**Understanding Pathogens: Study the types of pathogenic organisms that infect plants such as bacteria, fungi, .viruses, and other pests** **Diagnosing Diseases: Learn how to recognize the signs and symptoms of diseases and identify the different .diseases that affect plants** **Plant Protection: Understand how to prevent the spread of plant diseases and develop strategies to reduce them, such as the use of pesticides and advanced agricultural .techniques** **Treating Diseases: Studying different methods and techniques for controlling plant diseases including the use .of chemical and biological treatments** **Advanced Research: Encouraging research and development in the field of plant pathology to discover new .and innovative solutions to plant disease problems** **• Crop Conservation: Promote understanding of how to protect plant crops from diseases to ensure sustainable productivity and increase agricultural yields.**
9. Teaching and Learning Strategies	

Strategies	**Interactive lessons: Use interactive lessons that include live discussions, case studies, and interactive exercises to test students' understanding and application of concepts.** **Problem-based learning: Present real-life cases or potential problems in plant diseases, and encourage students to suggest solutions and analyze expected results.** **Effective use of technology: Use technological means such as educational videos, computer simulations, and interactive software to clarify difficult concepts and stimulate deep understanding.** **Cooperative learning: Encourage students to work in small groups to solve problems or prepare research reports on specific plant diseases, which enhances cooperation and interaction among students.** **Research projects: Give students the opportunity to conduct independent research or participate in research projects related to plant diseases, which enhances independence in learning and develops research and analysis skills.** **Comprehensive assessment: Use comprehensive assessment methods that include traditional tests in addition to performance assessment, active participation in discussions, and project assessment, to ensure students understand and apply the concepts taught.** **Individual follow-up: Provide individual feedback to students on their progress and understanding of the material, which helps them improve their performance and enhance their understanding.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	The student can define the main types of plant diseases (fungal, bacterial, viral), explain their causes, and describe how they affect plant health. The student can identify the losses associated with plant diseases, such as decreased productivity, increased costs, and deterioration of quality, and explain how these losses impact agricultural economics and the environment.	Introduction to Plant Diseases and the Losses Resulting from Them	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
2	5	The student can summarize the development of plant	History of Plant Pathology, Some Definitions and	Lecture Discussion Scientific	Interactive assessment Reports

		pathology from its early beginnings, including key discoveries such as the identification of plant pathogens and the evolution of diagnostic and treatment methods, and explain the scientific contributions that shaped the development of this .field The student can define essential terms such as "pathogens," "symptoms," "spread," "incubation," and "integrated pest management," and explain how these terms are used in the study and monitoring of plant .diseases	Common Terms in Plant Pathology	activities Dialogue and discussion	Daily quizzes
3	5	Understanding the Stages of Infectious Disease :Development in Plants The student can define the stages of infectious disease occurrence such as infection, penetration, infestation, spread, overwintering, and .survival Identifying Factors Influencing Disease :Development The student can identify the environmental and agricultural factors that affect the development and spread of plant .diseases	Occurrence and Development of Infectious Plant Diseases: Infection, Penetration, Infestation, Spread, Overwintering, and Survival	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
4	5	The student can explain how pathogens (such as fungi, bacteria, and viruses) enter and interact .with plants The student can describe how pathogenic agents affect fundamental plant functions such as photosynthesis, water and nutrient absorption, .and growth	Attacking Pathogens on Plants: The Impact of Pathogenic Agents on Plant Vital Functions	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
5	5	The student can explain	Plant Defense	Lecture	Interactive

		plant defense mechanisms such as immune responses, chemical secretions, and the formation of resistant cell walls to protect the plant from pathogenic .agents The student can define plant disease genetics and how genetic factors affect plant susceptibility to diseases, and explain the principles of plant disease epidemiology, including how diseases spread and are analyzed in different agricultural .environments	Mechanisms Against Pathogenic Attacks, Plant Disease Genetics, and Epidemiology of Plant Diseases	Discussion Scientific activities Dialogue and discussion	assessment Reports Daily quizzes
6	5	The student can explain plant disease resistance strategies such as genetic resistance, biological control, and chemical control, and how to enhance crop resistance .to diseases	Plant Disease Resistance and Classification of Plant Diseases	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
7	5	The student can define plant diseases caused by oomycetes, such as seedling damping-off, root rot, gummosis of citrus trees, and downy .mildew The student can describe the main symptoms of each disease and how these oomycetes affect .plant health	plant Diseases Caused by :Oomycetes Seedling Damping-Off, Root Rot, Gummosis of Citrus Trees, Downy :Mildew	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
8	5	The student can define plant diseases caused by ascomycete fungi, such as peach leaf curl, apple scab, and powdery .mildew The student can describe the main symptoms of each disease and how these ascomycete fungi .affect plant health	Plant Diseases Caused by Ascomycete Fungi Peach Leaf Curl, Apple Scab, Powdery Mildew	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
9	5		Diseases Caused by Deuteromycetes (Imperfect Fungi Wilts, Early Blight on Tomato,etc.	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes

10	5	The student can define diseases caused by basidiomycete fungi, such as smuts and rusts. The student can describe the main symptoms of each disease and how basidiomycete fungi affect plant health.	Diseases Caused by Basidiomycete Fungi: Smuts, rusts:	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
11	5	The student can define the characteristics of plant pathogenic bacteria, such as shape, structure, and disease-causing activities, as well as classify them into types based on their distinctive features. The student can describe Crown Gall Disease, Bacterial Wilt, Soft Rot, and Fire Blight on quince and apple, identifying the main symptoms of each disease and how they affect plant health.	Diseases Caused by Bacteria, Characteristics of Pathogenic Bacteria, Classification of Plant Pathogenic Bacteria, Diseases Caused by Bacteria(Crown Gall Disease, Bacterial Wilt, etc)	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
12	5	1.The student can identify the characteristics of plant pathogenic nematodes such as shape, size, and how they affect plants. ٢. The student can describe root knot disease, citrus slow decline disease, and wheat wart disease, identifying the main symptoms of each disease and how it affects plant health and productivity.	Diseases Caused by Nematodes: Characteristics of Plant-Parasitic Nematodes, Plant Diseases Caused by Nematodes(Root Knot Disease, low Decline Disease on Citrus)	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
13	5	The student can define the viruses and phytoplasmas causing diseases and identify the diseases they cause, such as Citrus Greening Disease and Corn Dwarfing Disease. The student can describe the main symptoms of Citrus Greening Disease and Corn Dwarfing Disease and explain how	Diseases Caused by Viruses and Phytoplasmas: Citrus Greening Disease (Huanglongbing, Corn Dwarfing (Disease	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes

		these diseases affect plant health and .productivity			
14	5	The student can define dodder and broomrape as examples of parasitic flowering plants and explain how they affect .host plants The student can describe the symptoms caused by dodder and broomrape on plants, such as stunted growth and reduced productivity, and explain how these diseases .impact crop health	Diseases Caused by Parasitic :Flowering Plants Dodder (Cuscuta spp Broomrape (Orobanche spp. and Phelipanche :(.spp	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
15	5	The student can define non-infectious diseases affecting plants, such as nutrient deficiencies, effects of temperature and humidity, poor storage conditions, high groundwater levels, and diseases caused by .environmental pollution The student can describe the main symptoms of each of these issues and explain how they impact plant health and productivity, such as symptoms of nutrient deficiencies, effects of environmental conditions .on growth	Non-Infectious :Plant Diseases Nutrient Deficiencies, Effects of Temperature and Humidity, etc..	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes

11. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily quizzes, oral exams, monthly exams, written exams, reports, etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Plant Diseases: Basics and Advanced (2018)" by Mohamed Amer Fayyad and Mohamed Hamza Abbas**
Main references (sources)	**Plant Pathology. 5th Edition.2005 Author: George N. Agrios**
Recommended books and references (scientific journals, reports...)	**plant pathology**
Electronic References, Websites	**1. plant disease 2. phytopathology**

Course description form

Course Name	
Mycology 2	
Course Code	
MYCO318	
Semester/year	
Second/third semester	
The date this description was prepared	
1/20/2024	
Available attendance forms	
Is mandatory	
Number of study hours (total) / number of units (total)	
65	
Name of the course administrator (if more than one name is mentioned)	
the name . A.M.D. Talal Hussein Saleh email	
Course objectives	
Introducing students to the most important groups of true fungi that cause plant diseases Acquire skills in isolating and diagnosing different true fungi Introducing the recipient to the most important groups of the true fungi kingdom	Objectives of the study subject
	135. Teaching and learning strategies
Canceling lectures by asking questions and discussing them with the recipients Using visual teaching aids such asData show and Hand out Microscopic examination of fungi and knowledge of the shapes and sizes of their spores Presenting models of fungi that cause plant diseases and how to diagnose them phenotypically by the recipient Field trips to some plant fields showing fungal infections Self-searching for knowledge throughHome work	The strategy
	136. **Course structure**

the week	Evaluation method	Learning method	Name of the unit or topic	Required educational outcomes	hours	the week
the first	Written and practical exam	Lecture + practical	Characteristics of cyst fungi	Cystic fungi	5	the first

the second	Exam Editorial And practical	Lecture + practical	Plant diseases caused by their industrial uses	The economic importance of cyst fungi	5	the second
the third	Exam Editorial And practical	a lecture+practical	The most important scholars who laid the foundations of the division	Division of cyst fungi	5	the third
the fourth	Exam Editorial And practical	a lecture+practical	Low and advanced levels of cyst fungi	Rows of cyst fungi	5	the fourth
Fifth	Exam Editorial And practical	a lecture+practical	Types of fruiting bodies, their shapes and compositions	Fruiting bodies formed by cyst fungi	5	Fifth
VI	Exam Editorial And practical	a lecture+practical	Types and importance of truffle fungi	Truffle fungi	5	VI
Seventh	Exam Editorial And practical	a lecture+practical	Characteristics of basidiomycetes	Basidiomycetes	5	Seventh
VIII	Exam Editorial And practical	a lecture+practical	Plant diseases caused by its benefits	The economic importance of basidiomycetes	5	VIII
Ninth	Exam Editorial And practical	a lecture+practical	Fundamentals of division of basidiomycetes	Division of fungi	5	Ninth

The tenth	Exam Editorial And practical	a lecture+ practical	The most important diseases and charcoal diseases	Echoes and charring	5	The tenth
eleventh	Exam Editorial And practical	a lecture+ practical	Characteristics of imperfect fungi	Imperfect fungi	5	eleventh
twelveth	Exam Editorial And practical	a lecture+ practical	The most important classes of imperfect fungi	Division of imperfect fungi	5	twelveth
Thirteenth	Exam Editorial And practical	a lecture+ practical	Diseases caused by imperfect fungi on their plant hosts	The importance of imperfect fungi	5	Thirteenth

Course evaluation

Degree distribution from100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.

Learning and teaching resources

Mujeeb Mitab plant diseases1984	Books decided required(methodology)
Reference in mycology / Dr. Jawdat Tawfiq / Syria	Main reference (sources)
Classification and classification of fungi / Dr. Fayyad Muhammad Sharif / Iraq Introduction to Mycology Dr. Saad Shehata / Libya	Recommended supporting books and references (scientific journals, reports.)

Course Description Form

1. Course Name:

ENGLISH language 3

2. Course Code:

ENGL302

3. Semester / Year:

2023-2024 (First course)

4. Description Preparation Date:

The beginning of the first course

1. Forms of Attendance:

Attending in college

6. Number of Studying Hours (Total) / Number of Units (Total

15 / 1

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

Name: Dr.Farhan Jasim Mohammed	**Email: farhanalhakim@uomisan.edu.iq**

8. Course Objectives

Course Objectives	**1- Providing the student with academic writing skills and English grammar** **2-Providing the student with the skill of speaking the English language** **3-Providing the student with the skill of listening to the English language** **4-Providing the student with reading and reasoning in the English language**

9. Teaching and Learning Strategies

Strategies	**Using modern means to deliver information to students and using field work to learn more about the course methodology, which is part of modern education, so that complete information about the course is available after the student .graduates**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	١	Understanding, perception, practical application	How to use present simple tense in positive, negative and questions	Lecture and discussion	Oral exams, quizzes and written exams
2nd	1	Understanding, perception, practical application	How to use past simple tense in positive, negative and questions	Lecture and discussion	Oral exams, quizzes and written exams
3rd	١	Understanding, perception, practical application	How to use future simple tense in positive, negative and questions	Lecture and discussion	Oral exams, quizzes and written exam
4th	١	Understanding, perception, practical	Tenses in passive voice case: simple tense: present, past future	Lecture and discussion	Oral exams, quizzes and written exam

		application			
th ٥	١	Understanding, perception, practical application	Common mistakes in tense	Lecture and discussion	Oral exams, quizzes and written exam
6th	١	Understanding, perception, practical application	Interrogative tools in the English language	Lecture and discussion	Oral exams, quizzes and written exam
7th	١	written exam	First month exam	written exam	written exam
8th	١	Understanding, perception, practical application	Reading skills	Lecture and discussion	Oral exams, quizzes and written exam
9th	١	Understanding, perception, practical application	Writing skills	Lecture and discussion	Oral exams, quizzes and written exam
10th	١	Understanding, perception, practical application	Practice in speaking	Lecture and discussion	Oral exams, quizzes and written exam
11th	١	Understanding, perception, practical application	Agriculture vocabulary	Lecture and discussion	Oral exams, quizzes and written exam
12th	١	written exam	Second month exam		
13th	١	Understanding, perception, practical application	Some spelling changes we need to add to the verb when we use present continuous	Lecture and discussion	Oral exams, quizzes and written exam
14th	١		Reading and writing skills	written exam	written exam
11th	١	Understanding, perception, practical application	Listen to conversations in English, reading	Lecture and discussion	Oral exams, quizzes and written exam

11. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such .as homework, daily, oral, monthly written exams, final written exam, reports, etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**New headway beginner Liz and John Soars, Paul Hancock**
Main references (sources)	
Recommended books and references (scientific journals, reports...)	**Access to recent research, articles and studies related to modern learning methods**
Electronic References, Websites	**All English language learning sites**

Forth Stage

Course Description Form

1. Course Name:	
Orchard insects	
2. Course Code:	
ORCI411	
3. Semester / Year:	
First semester 2023/2024	
4. Description Preparation Date:	
2023/9/1	
5. Forms of Attendance:	
Full time (theoretical lecture/practical lecture)	
6. Number of Studying Hours (Total) / Number of Units (Total)	
75/	
7. Course Administrator's Name (mention all, if more than one name)	
Name:Ali Hassan	Email: ali.h.h@uomisan.edu.iq
8. Course Objectives	
Course Objectives	• • Giving the student an idea about the most important orchard insects found in the Iraqi environment • • Give an idea of the economic damages • • Introducing the student to how to diagnose an insect, how to know its damage through field symptoms, and how to combat it.
9. Teaching and Learning Strategies	
Strategies	5- Use the method of delivering information through lecture 6- Students participate in obtaining information by requesting seminars and scientific reports 7- Training students on the method of logical discussion to reach results 8- Learning through applied field practices .

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Understanding, perception	• General concepts about the most important damage caused by insects	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
2	5	Understanding, perception	A general idea about diagnosing infections in fruits and vegetables	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams

3	5	Understanding, perception	General concepts of economic damage and criticality limit	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
4	5	Understanding, perception	Termite insect	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
5	5	Understanding, perception	Aphid	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
6	5	Understanding, perception	Insects with general damage	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
7	5	Written exam	Written exam	Written exam	Written exam
8	5	Understanding, perception	Palm insects	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
9	5	Understanding, perception	Insects on the legume family	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
10	5	Understanding, perception	Insects of the cucurbit family	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
11	5	Understanding, perception	Insects of Solanaceae family	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
12	5	Written exam	Written exam	Written exam	Written exam
13	5	Understanding, perception	Insects of the liliaceae family	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
14	5	Understanding, perception	General concepts about orchard	Lecture and discussion	Oral exams, seminars,

			insect management		Exams Quick(coz) and written exams
15	5	Understanding, perception	A review general	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams

11. Course Evaluation	
Distribution of the grade out of 50 according to the tasks assigned to the student, such as homework, .daily, oral, monthly, written exams, reports, etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Economic insects / Dr. Abdullah Al-Azzawi
Main references (sources)	Orchard insects / Dr. Salem Girgis, Dr. Muhammad Abdel Karim Muhammad
Recommended books and references (scientific journals, reports...)	Crop insects / Dr. Muhammad Zuhair Mahmalji, Dr. Abdel Nabi Bashir
Electronic References, Websites	All websites of scientific journals and universities interested in this aspect

Course Description Form

1. Course Name:

Insect Ecology

2. Course Code:

INSE413

3. Semester / Year:

2023-2024 (second course)

4. Description Preparation Date:

The beginning of the second course/ 2024/4/15

5. Forms of Attendance:

Attending in college

6. Number of Studying Hours (Total) / Number of Units (Total)= 30

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

Name: Dr.Farhan Jasim Mohammed	**Email: farhanalhakim@uomisan.edu.iq**

8. Course Objectives

Course Objectives	**1- Introducing the student to ecology, the development of ecology, sections of ecology, the ecosystem, the atmosphere, the effect of the environment on .insects** **2- Introducing the student to biotic and abiotic environmental factors, the relationship between them and their effect on insects** **3- Introducing the concepts of the food chain, the food web, the relationships between insects and the characteristics of insect groups**

9. Teaching and Learning Strategies

Strategies	**1-Use the method of delivering information through lecture** **2- Students participate in obtaining information by asking them to submit scientific reports** **3- Training students on how to discuss to reach results** **4- Learning through the applied experimental field**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	5	Understanding, perception, practical application	General definitions of ecology, its divisions, methods of studying , and tools for collecting insects	Lecture and discussion	Oral exams, quizzes and written exams
2nd	5	Understanding, perception, practical application	Natural balance in insects, biotic potential factors, environmental resistance factors, insect traps	Lecture and discussion	Oral exams, quizzes and written exams
3rd	5	Understanding, perception, practical	Environmental factors and their classification, methods of collecting insects	Lecture and discussion	Oral exams, quizzes and written exam

		application			
4th	5	Understanding, perception, practical application	Areas of distribution of the species, ecological survey of insects and its targets	Lecture and discussion	Oral exams, quizzes and written exam
5th	5	Understanding, perception, practical application	Abiotic environmental factors and their effect on insects, a survey of arthropods in the jet field	Lecture and discussion	Oral exams, quizzes and written exam
6th	5	Understanding, perception, practical application	Humidity and light, sources of moisture for insects and its effect on insect growth	Lecture and discussion	Oral exams, quizzes and written exam
7th	5	written exam	First month exam	written exam	written exam
8th	5	Understanding, perception, practical application	Secondary abiotic factors, insect rearing	Lecture and discussion	Oral exams, quizzes and written exam
9th	5	Understanding, perception, practical application	Biotic factors and their effect on insects, examples of rearing some important insects	Lecture and discussion	Oral exams, quizzes and written exam
10th	5	Understanding, perception, practical application	Division of insects according to families, nutritional efficiency, rearing insects on artificial media	Lecture and discussion	Oral exams, quizzes and written exam
11th	5	Understanding, perception, practical application	The effect of food on insect growth, estimating population densities	Lecture and discussion	Oral exams, quizzes and written exam
12th	5	Understanding, perception, practical application	Competition, percentage estimation	Lecture and discussion	Oral exams, quizzes and written exam
13th	5	Understanding, perception, practical application	Biological enemies, competition .between species	Lecture and discussion	Oral exams, quizzes and written exam
14th	5	written exam	Second month exam	written exam	written exam
15th	5	Understanding, perception, practical application	General characteristics of insect groups, distribution, spread, migration, and estimation of the damage of some insects	Lecture and discussion	Oral exams, quizzes and written exam

11. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such .as homework, daily, oral, monthly written exams, final written exam, reports, etc

12. Learning and Teaching Resources

Required textbooks	Book of Insect ecology by Dr. Khaled Ali Rawishdi

(curricular books, if any)	
Main references (sources)	**Scientific journals dealing with insect ecology**
Recommended books and references (scientific journals, reports...)	**Insect entomology journals**
Electronic References, Websites	**All agricultural and environmental science journals sites**

Course Description Form

1. Course Name:	
Storage Pests	
2. Course Code:	
STOP414	
3. Semester / Year:	
Courses	
4. Description Preparation Date:	
5. Forms of Attendance:	
Attendance only	
6. Number of Studying Hours (Total) / Number of Units (Total)	
75 hours	
7. Course Administrator's Name (mention all, if more than one name)	
Name: Asist.lecture Fatima.kassem.Hamdan	**Email: fatima.kassem@ uomisan.edu.iq**
8. Course Objectives	
Course Objectives	• **The student's knowledge of the definition of grains, their types, their importance, and their various components - the economic and political importance of storing grains - the importance of storing grains in Iraq.** • **Study of ancient and modern methods of storing grains - conditions that must be followed for good storage - signs of spoilage in grains - factors that affect the nutritional value and spoilage of grains.** • **The student learns about the damage caused by insects to stored materials, including direct and indirect damage** • **Students learned about some of the pests that affect stored grains, especially in Iraq.** • **Study of environmental factors and their relationship to their presence and spread in grains.** • **A biological study of some pests that affect stored grains.** • **The student learned about the benefits of insect pests.** • **The student learned about controlling insect pests of stored grains using preventive and curative measures.** • **- Study and identify the sources through which insects can infect healthy grains.** • **Knowing how a student can distinguish infected grains from healthy grains by the symptoms of infection.** • **Identify non-insect pests, including rodents and birds.**
9. Teaching and Learning Strategies	
Strategies	**1- Assigning students to conduct reports and research on topics related to the curriculum** **2- Bringing grains and their products from homes for the purpose of identifying the apparent symptoms of grain damage resulting from insect infestation.**

	3- Theoretical lectures and the use of PowerPoint and the methodological book.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Students learned about what grains are, the importance of grains, and the importance of storing grains in Iraq	Cereals and their importance	Using the lecture method and using the Data show device to display data	Coz test at the end of the lecture
2	5	Students learned about the characteristics of insect pests of stored grains and the insect orders within which warehouse pests fall	Habitats of different species of warehouse insects	Using the lecture method and using the Data show device to display data	Questions and closing discussio n
3	5	The students learned about different types of underground storage methods supported by videos and illustrative pictures	Old storage methods	Using the lecture method and using the Data show device to display data	Coz test at the end of the lecture
4	5	Students learned about modern storage methods of various types installing iron or wooden silos as the best way to store grains, and good .storage conditions	Modern storage methods and iron and concrete silos	Using the lecture method and using the Data show device to display data	Questions and closing discussio n
5	5	Students learned about the signs of damage in visible and non-visible grains and how to detect them	Signs of grain damage	Using the lecture method and using the Data show device to display data with videos of signs of damage	Coz test at the end of the lecture

6	5	Students learned about the factors that affect the nutritional value and spoilage of grains	Factors affecting the value of grains	Using the lecture method and using the Data show device to display data	Questions and closing discussio n
7	5	Students learned about the direct and indirect damage caused by insects to stored grains	Losses resulting from insect pests of stored grains and grain products	Using the lecture method and using the Data show device to display data	Questions and closing discussio n
8	5	Students learned about the most common orders of stored grain insects in Iraq	The most common insect pest in Iraq	Using the lecture method and using the Data show device to display data	Questions and closing discussio n
9	5	Students learned the scientific names of some insect pests belonging to the orders of Coleoptera and Lepidoptera knowing the harmful phase of each order and the environment it infects and the nutritional preferences of the specie	Some insect pests that affect grains stored and registered in Iraq	Using the lecture method and using the Data show device to display data	Coz test at the end of the lecture
10	5	Students learned about environmental factors, including temperature, humidity, light, competition, predation, and other factors, and the extent of their impact on the presence and spread of insect pests	Environmental factors and their relationship to the presence and spread of insect pests	Using the lecture method and using the Data show device to display data	Coz test at the end of the lecture
11	5	Students learned about the life of some insect pests that affect grains	Life of insect pests of stored grains	Using the lecture method and using the Data show	Coz test at the end of the lecture

		stored and registered in Iraq, mentioning the type of metamorphosis		device to display data	
12	5	Students learned about the benefits of insect pests of stored grains and their control using preventive measures And therapeutic procedures	Benefits and control of insect pests of stored grains	Using the lecture method and using the Data show device to display data	Coz test at the end of the lecture
13	5	Students learned about the sources that can cause grain infection, including infection in fields, harvesters, means of transportation, and other things	Sources of grain infestation with insect pests	Using the lecture method and using the Data show device to display data	Coz test at the end of the lecture
14	5	Students learned to distinguish between infected and healthy grains based on the symptoms of infection	Symptoms of grain infestation with insect pests	Using the lecture method and using the Data show device to display data	Coz test at the end of the lecture
15	5	Students learned about non-insect pests, including rodents and birds	Non-insect pests	Request to submit presentations for students using the Data Show device on various topics about insect pests and methods of storing grains in the world	Questions and closing discussio n

11. Course Evaluation

Distribution of the grade out of 50 according to the tasks assigned to the student, .such as homework, daily, oral, monthly, written exams, reports, etc
Theoretical part: Average of the first and second months (30) marks:
The first month: written exam (25) marks + exams and absences (5) marks.
The second month: written exam (25 marks) + presentations (5 marks).
Practical part: average for the first and second months (20) marks:
The first month: a written exam (10) marks + marks and absence exams (5) marks + bringing grains infected with insect pests to the laboratory for the purpose of making slides to diagnose the species.

The second month: Written exam (10) marks + marks and absences exams (5) marks + holding a competition among students to quickly memorize the names of species (5) marks.	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**Pests of stored grains**
Main references (sources)	**Insects in warehouses - Al-Azzawi and Mahdi, 1983** **Pests of Stored Products- Aead Yousif Haj Ismail - 2014**
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course description form

Name of the course1-	
Vegetable and Greenhouses Diseases	
Course code2-	
VEGD415	
Semester/year3-	
2023/2024 First semester	
The date this description was prepared4-	
4/28/2024	
Available forms of attendance5-	
My presence	
(Number of study hours (total) / number of units (total6-	
/ hours ٧٥	
(mentioned Name of the course administrator (if more than one name is7-	
daghirg@uomisan.edu.iq : Email	Name: Prof. Dr. Ghassan Mahdi Dagher
Course objectives8-	
Objectives of the study subject	• Diagnosis of vegetable diseases • Identify the causes of diseases of various types of vegetable plants • Describe methods of resistance and diseases of vegetable plants treatment for
Teaching and learning strategies9-	
Use the method of delivering information through lecture-١ Students participate in obtaining information by asking them to -٢ reports submit scientific Training students on the method of logical discussion to reach -٣ results Learning through applied field practices -٤	The strategy

10- course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Nursery diseases	Understanding, perception, practical application	٥	first the
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Diseases of nightshade vegetables	Understanding, perception, practical application	٥	the second
Oral exams, rapid exams COES) and)	Lecture and discussion	Diseases of nightshade vegetables	Understanding, perception, practical	٥	the third

written exams			application		
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Diseases of squash vegetables	،Understanding perception, practical application	٥	the fourth
exams, Oral rapid exams COES) and) written exams	Lecture and discussion	Diseases of squash vegetables	Understanding, perception, practical application	٥	Fifth
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Cruciferous vegetable diseases	Understanding, perception, practical application	٥	VI
Written exam	Written exam	Written exam	Written exam	٥	Seventh
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Complex vegetable diseases	Understanding, perception, practical application	٥	VIII
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Diseases of leguminous vegetables	Understanding, perception, practical application	٥	Ninth
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Diseases of leguminous vegetables	Understanding, perception, practical application	٥	The tenth
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Diseases of lily vegetables	Understanding, perception, practical application	٥	eleventh
Oral exams, rapid exams COES) and) written exams	and Lecture discussion	Diseases of lily vegetables	Understanding, perception, practical application	٥	twelveth
Written exam	Written exam	Written exam	Written exam	٥	Thirteenth
Oral exams, rapid exams COES) and)	Lecture and discussion	Diseases of mallow vegetables	Understanding, perception, practical	٥	fourteenth

written exams			application		
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Diseases of mallow vegetables	Understanding, perception, practical application	٥	Fifteenth

Course evaluation11-	
according to the tasks assigned to the student, ١٠٠grade out of Distribution of the .such as daily preparation, daily, oral, monthly, written exams, reports, etc	
Learning and teaching resources12-	
/ esDiseases of orchards and vegetabl Dr. Samir Mikhail and others	(Required textbooks (methodology, if any
Dr. Muhammad Amer / Plant diseases Fayyad, Dr. Muhammad Hamza Abbas George Akrios/ Plant diseases	(Main references (sources
journals dealing with all plant Scientific diseases	Recommended supporting books and (....references (scientific journals, reports
All agricultural magazine sites and plant disease magazines	Electronic references, Internet sites

Course Description Form

1. Course Name:	
Biological Control	
2. Course Code:	
BIOC416	
3. Semester / Year:	
Chapter two /four	
4. Description Preparation Date:	
20 / 1 / 2024	
5. Forms of Attendance:	
Is mandatory	
6. Number of Studying Hours (Total) / Number of Units (Total)	
65	
7. Course Administrator's Name (mention all, if more than one name)	
Name: A.M.Dr AbdulKarimm Qasim	**Email: Abdulkareemalmolla@gmali.com**
8. Course Objectives	
Objectives of the study subject.	**1.Preparing students with the ability to work in in the field of crop protection according to modern scientific curricula linked to developments in this field that are happening in developed countries of the world.** **2.Entering the agricultural sector with distinguished efficiency through participation in government projects and the labor market.** **3.Directing students towards the desire to obtain better experiences when applying for studies.**
9. Teaching and Learning Strategies	
1.Knowledge and understandin **2.Subject-specific skills**	**1.The importance of insects and their relationship to the environment.** **2.Knowledage of local and imported biological enemies.** **3.Identify groups of parasites, insect predators, and pathogens.** **4.Identify biological resistance programs for crops and leading economic pests in the word.** **1.Training in diagnosing important biological enemies.** **2.Going out to the fields to know what is there and what is new.** **3.Calculating the severity of the injury and the economic**

3.Teaching and learning methods. **4.Evaluation methods** **5.General and transferable skills**	**criticality limit.** **1.Using modern means such as a data display device, showing.** **2.Very modern bio-resistance videos from reputable universities.** **1.Conduct week and monthly tests.** **2.Reports preparation.** **3.View photos, videos and reports.** **4.thinking skills.** **5.Scientifi resources form the library.** **1.Collecting harmful and beneficial insects and urban predators.** **2.Identify biological enemies.** **3.Thinking about ways to perpetuate vital enemies.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Insects and their relationship with the environment .	Introduction to the procedures using in introducing biological enemies.	Lecture + practical.	Written and practical exam .
2	5	Natural resistance to insects.	Important groups of insect parasites.	Lecture + practical.	Written and practical exam .
3	5	Ways of biological resistance.	Pest diagnosis, habitat identification, quarantine for imported models, final evaluation.	Lecture + practical.	Written and practical exam .
4	5	Methods used to introduce	The procedures used to introduce	Lecture + practical.	Written and practical exam .

		biological enemies.	biological enemies include diagnosing the pest as an exotic species, determining the original habitat of the pest, quarantine, and others.		
5	5	Insects that feed on insects.	Important groups of insect predators and their biological characteristics , and their predation strategies. parasites and their types.	Lecture + practical.	Written and practical exam .
6	5	Importan totals.	Order: Odonata , Hymenoptera , Coleoptera , Diptera , Lepidoptera.	Lecture + practical.	Written and practical exam .
7	5	Bacterial resistance.	Fungi, bacteria, viruses and others used in biological resistance.	Lecture + practical.	Written and practical exam .
8	5	Pathogens.	Types of fungi and bacteria used in bioresistance.	Lecture + practical.	Written and practical exam .
9	5	Defense mechanisms in insects.	Insect methods in self-defense : direct and	Lecture + practical.	Written and practical exam .

			indirect external defence.		
10	5	Resistance to insect parasites and the use of means of defense.	Protective encapsulation, host exhaustion, active resistance to the parasite.	Lecture + practical.	Written and practical exam .
11	5	Bioresistance methods.	Plant resistance to insects and diseases, resistance to agricultural methods, pheromones and repellents.	Lecture + practical.	Written and practical exam .
12	5	Some successful projects in the bioresistance program.	Biological resistance of prickly pear, plant Lantana and others.	Lecture + practical.	Written and practical exam .
13	5	Biological resistance in an integrated pest management programme.	Review.	Lecture + practical.	Written and practical exam .
14	Second Month Exam				
15					
11. Course Evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as homework, daily, oral, monthly, written exams, reports, etc.					
12. Learning and Teaching Resources					

Required textbooks (curricular books, if any)	**Biological resistances to pests /Dr.Hamza Kazem Al-Zubaidi.**
Main references (sources)	**Biological control (theoretical part) Dr.Abdul Nabi Bashir and Dr.Kamal Al-Ashqar, Damascus University..**
Recommended books and references (scientific journals, reports...)	**Google Square and other relevant sites.**

Course description form

Name of the course1-	
Fruit Diseases	
Course code2-	
FRUD417	
Semester/year3-	
2023/2024 Second semester	
The date this description was prepared4-	
4/15/2024	
Available forms of attendance5-	
My presence	
(Number of study hours (total) / number of units (total6-	
units five/ hours ٧٥	
(Name of the course administrator (if more than one name is mentioned7-	
daghirg@uomisan.edu.iq Email:	**Prof. Dr. Ghassan Mahdi Dagher :Name**
Course objectives8-	
Objectives of the study subject	• **Diagnosis of fruit tree diseases** • **Identify the causes of diseases of various of fruit trees types** • **Description of resistance and treatment methods for fruit tree diseases**
Teaching and learning strategies9-	
Use the method of delivering information through lecture-١ **obtaining information by asking them to Students participate in -٢ submit scientific reports** **Training students on the method of logical discussion to reach -٣ results** **Learning through applied field practices -٤**	**The strategy**

Course structure10-

Evaluation method	Learning method	the unit Name of or topic	Required learning outcomes	hours	the week
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Apple and raft diseases	Understanding, perception, practical application	٥	the first
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Apple and raft diseases	Understanding, ،perception practical application	٥	the second
Oral exams, rapid exams	Lecture and discussion	Stone fruit diseases	Understanding, perception,	٥	the third

and (COES) written exams			practical application		
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Stone fruit diseases	Understanding, perception, practical application	٥	the fourth
Oral exams, rapid exams COES) and) written exams	and Lecture discussion	Citrus diseases	Understanding, perception, practical application	٥	Fifth
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Citrus diseases	Understanding, perception, practical application	٥	VI
Written exam	Written exam	Written exam	Written exam	٥	Seventh
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Grape diseases	Understanding, perception, practical application	٥	VIII
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Grape diseases	Understanding, perception, practical application	٥	Ninth
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Olive diseases	Understanding, perception, practical application	٥	The tenth
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Palm diseases	Understanding, perception, practical application	٥	eleventh
Written exam	Written exam	Written exam	Written exam	٥	twelveth
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Pistachio diseases	Understanding, perception, practical application	٥	Thirteenth
Oral exams, rapid exams	Lecture and discussion	Fig diseases	Understanding, perception,	٥	fourteenth

COES) and) written exams			practical application		
Oral exams, rapid exams COES) and) written exams	Lecture and discussion	Pomegranate diseases	Understanding, ،perception practical application	٥	Fifteenth

Course evaluation11-	
according to the tasks assigned to the student, ١٠٠ Distribution of the grade out of .daily, oral, monthly, written exams, reports, etc ،such as daily preparation	
Learning and teaching resources12-	
/ Diseases of orchards and vegetables Dr. Samir Mikhail and others	(Required textbooks (methodology, if any
er Dr. Muhammad Am/ Plant diseases Fayyad, Dr. Muhammad Hamza Abbas George Akrios/ Plant diseases	(Main references (sources
Scientific journals dealing with all plant diseases	Recommended supporting books and (....references (scientific journals, reports
magazine sites and All agricultural plant disease magazines	Electronic references, Internet sites

Course Description Form

1. Course Name:

Plant Virology

2. Course Code:

PLAV418

3. Semester / Year:

4. Description Preparation Date:

٢٠٢٤/١/٢٠

5. Forms of Attendance:

Mandatory

6. Number of Studying Hours (Total) / Number of Units (Total)

65

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

Name:Assisst.Prof. abdulkareem kassim jabar	Email: abdulkareemalmolla@gmail.com

8. Course Objectives

Course Objectives	• Identify the structure and Construction of plant viruses. • Identifying the viral types and families spread in Iraq and the world. • Identify the economic importance of viruses. • Identify methods of detection and diagnosis of plant viruses • Identify ways to combat viral diseases

9. Teaching and Learning Strategies

Strategies	1. Focus on discussion and participation in the lecture for the recipient . 2. Emphasis on homework assignments and preparing reports related to the subject . 3. Field detection, collecting infected samples, bringing them to the laboratory and diagnosing them . 4. Answering and discussing direct questions and closely related questions, i.e. inferential ones.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Historical introduction to viruses	An overview of the emergence and development of plant viruses	Lecture	Homework and a daily exam
2	5	Symptoms caused by viruses	Identify the most important external and	Lecture	Homework

			internal symptoms caused by viruses on the host plant		
3	5	Insect transport	Identify the different ways insects transmit plant viruses	Lecture	Daily exam
4	5	Transportation by other methods	Transmission of the virus by other vectors such as seeds , Pollination, fungi, and mechanical transmission	Lecture	Homework
5	5	Serological characteristics of viruses	Explaining the different serological methods for detecting and diagnosing viruses	Lecture	Monthly exam
6	5	structure and composition of virus	Explaining the structure and composition of virus particles and their various forms	Lecture	Daily exam
7	5	The economic importance of viral plant diseases	A comprehensive explanation of the impact of viruses, their economic importance, and the damage they cause	Lecture	Homework
8	5	Naming and classification of plant viruses	Explaining the foundations and rules of nomenclature and classification of plant viruses	Lecture	Daily exam
9	5	Plant defense mechanisms against viruses	Explaining the means and mechanisms for	Lecture	Monthly exam

			plant resistance to viral infection		
10	5	Diagnosing the virus using molecular methods	Explaining the most important methods of detection and molecular diagnosis of viruses	Lecture	Homework
11	5	The most important viral diseases	An explanation of the most important viral diseases, their methods of transmission, the symptoms they cause, and the damage they cause, especially in Iraq	Lecture	Daily exam
12	5	Classification of viruses	An explanation of how viruses, families, and viral genera are classified	Lecture	Homework
13	5	Virus infection	An explanation of the method of infection with the virus and its movement within the plant	Lecture	Daily exam
14	5	The most important ways to resist viruses	Explaining the many ways to control viral diseases, such as agricultural methods, controlling vector insects, using resistant varieties, and other modern .methods	Lecture	Monthly exam
15					

11. Course Evaluation

Distribution of the grade out of 50 according to the tasks assigned to the student, .such as homework, daily, oral, monthly, written exams, reports, etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Plant viruses / Dr. Abdul Latif Bahjat Shawkat**
Main references (sources)	**Viruses and viral plant diseases / Dr. Mustafa Helmy Al-Hammadi, Dr. Jaber Ibrahim Fajla and Dr. Hamed Mahmoud Mazid**
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:

Field Crop Insects

2. Course Code:

FICI419

3. Semester / Year:

2023-2024 (second course)

4. Description Preparation Date:

The beginning of the second course/ 2024/4/15

5. Forms of Attendance:

Attending in college

6. Number of Studying Hours (Total) / Number of Units (Total)= 30

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

Name: Dr.Farhan Jasim Mohammed	**Email: farhanalhakim@uomisan.edu.iq**

8. Course Objectives

Course Objectives	**Diagnosis of field crop insects and infestation symptoms** **Identify field crop insects, their life cycles, suitable environmental conditions, and geographical distribution** **Control methods and treatment for field crop insects**

9. Teaching and Learning Strategies

Strategies	**1-Use the method of delivering information through lecture** **2- Students participate in obtaining information by asking them to submit scientific reports** **3- Training students on how to discuss to reach results** **4- Learning through the applied experimental field**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	5	Understanding, perception, practical application	General definitions, economic entomology, crop insect damage and their diagnosis	Lecture and discussion	Oral exams, quizzes and written exams
2nd	5	Understanding, perception, practical application	The economic importance of crop insects, types of insect pests, reasons for increasing insect damage, cotton insects	Lecture and discussion	Oral exams, quizzes and written exams
3rd	5	Understanding, perception, practical application	Aphids, damage, types, diagnosis, life cycle, control, tobacco and Brassica napus insects	Lecture and discussion	Oral exams, quizzes and written exam
4th	5	Understanding, perception, practical	Locusts, damage, types, diagnosis, life cycle, Invasion factors, control, wheat and barley insects.	Lecture and discussion	Oral exams, quizzes and written exam

		application			
5th	5	Understanding, perception, practical application	review of field crop insects, plant families, life cycles, control methods, .rice, corn, and sugarcane insects	Lecture and discussion	Oral exams, quizzes and written exam
6th	5	Understanding, perception, practical application	Cotton pests	Lecture and discussion	Oral exams, quizzes and written exam
7th	5	written exam	First month exam	written exam	written exam
8th	5	Understanding, perception, practical application	Wheat and barley pests, legume insects	Lecture and discussion	Oral exams, quizzes and written exam
9th	5	Understanding, perception, practical application	Beet pests	Lecture and discussion	Oral exams, quizzes and written exam
10th	5	Understanding, perception, practical application	Legume pests	Lecture and discussion	Oral exams, quizzes and written exam
11th	5	Understanding, perception, practical application	Sunflower and safflower pests	Lecture and discussion	Oral exams, quizzes and written exam
12th	5	Understanding, perception, practical application	Sesame pests	Lecture and discussion	Oral exams, quizzes and written exam
13th	5	Understanding, perception, practical application	Tobacco and rape pests	Lecture and discussion	Oral exams, quizzes and written exam
14th	5	written exam	Second month exam	written exam	written exam
15th	5	Understanding, perception, practical application	Insects of the saprophyte family, a field tour to identify insects	Lecture and discussion	Oral exams, quizzes and written exam

11. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such .as homework, daily, oral, monthly written exams, final written exam, reports, etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Book of Economic insects in northern Iraq\Dr. Awad Hanna Sae
Main references (sources)	Field crop insects/ Author: Dr. Iyad Youssef Al Haj Ismail
Recommended books	Insect entomology journals

and references (scientific journals, reports...)	
Electronic References, Websites	**All agricultural and environmental science journals sites**

Course Description Form

1. Course Name:		
Agricultural Mites		
2. Course Code:		
AGRM420		
3. Semester / Year:		
2023 / 2024		
4. Description Preparation Date:		
15 / 4 / 2024		
5. Forms of Attendance:		
My presence		
6. Number of Studying Hours (Total) / Number of Units (Total)		
75 Hours/ five Units		
7. Course Administrator's Name (mention all, if more than one name)		
Name: Ali Hussein Ali	**Email: ali_hussain@uomisan.edu.iq**	
8. Course Objectives		
Course Objectives	**Diagnosing the damage caused by the agricultural mite to plants, identifying its typs, describing the methods of control and treatment of the damage caused by the agricullatural mite to plants.**	
9. Teaching and Learning Strategies		
Strategies	**1.Use the method of delivering information through lecture. 2.Students participate in obtaining information by asking them to submit scientific reports. 3.Training students on the method of logical discussion to reach practices. 4. Learing through applied field practices.**	

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Understanding, Realization, the practical application.	Introduction to agricultural mite and how to distinguish between arthropods.	Lecture and discussion.	Oral exams quick (COZ) and written exams.

2	5	Understanding, Realization, the practical application.	The general classification of the agricultural mite with the animal kingdom.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
3	5	Understanding, Realization, the practical application.	The economic importance of the mite agricultural.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
4	5	Understanding, Realization, the practical application.	Factors leading to the success of the agricultural mite.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
5	5	Understanding, Realization, the practical application.	Factors leading to the spread of the agricultural mite.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
6	5	Understanding, Realization, the practical application.	Dividing the agricultural mite according to feeding habits and the nature of living.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
7	5	Written exam	Written exam	Written exam	Written exam
8	5	Understanding, Realization, the practical application.	The external appearance of the agricultural mite areas of the body.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
9	5	Understanding, Realization, the practical application.	Internal anatomy of the agricultural	Lecture and discussion.	Oral exams quick (COZ) and written exams.

			mite (its internal organs).		
10	5	Understanding, Realization, the practical application.	Agricultural mite predators.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
11	5	Understanding, Realization, the practical application.	Agricultural mite family with hairy wrist.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
12	5	Written exam	Written exam	Written exam	Written exam
13	5	Understanding, Realization, the practical application.	Ariophytic mite family.	Lecture and discussion.	Oral exams quick (COZ) and written exams.
14	5	Understanding, Realization, the practical application.	Agricultural mite pesticides	Lecture and discussion.	Oral exams quick (COZ) and written exams.
15		Understanding, Realization, the practical application.	Mechanism of action of pesticides	Lecture and discussion.	Oral exams quick (COZ) and written exams.

11. Course Evaluation	
Distribution of the grade out of 50 according to the tasks assigned to the student, such as homework, daily, oral, monthly, written exams, reports, etc.	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	The mite of protected agricultural, diagnosis, lifestyle and control – professor Dr.Nizar Mustafa Al-Mallah.
Main references (sources)	Entomology professor Dr.Osama Bahareth.
Recommended books and references (scientific journals, reports...)	Scientific journals, books and research related to the agricultural mite.
Electronic References, Websites	All agricultural magazine sites and magazines related to mite and Amitaria.

Course Description Form

1. Course Name:	
Field Crop Diseases	
2. Course Code:	
FICD421	
3. Semester / Year:	
2023-2024	
4. Description Preparation Date:	
2024/ 5/ 15	
5. Forms of Attendance:	
Mandatory attendance	
:6. Number of Studying Hours (Total) / Number of Units (Total)	
75 hours	
7. Course Administrator's Name (mention all, if more than one name)	
Name: Dr. Ali Athafah Tomah	Email: ali_athafah@uomisan.edu.iq

8. Course Objectives	
Course Objectives	• Preparing scientific researchers in the field of pathology, especially field crop diseases. • Activating students' scientific activity and creating a spirit of competition among them to excel in acquiring knowledge. • The ability to work in the agricultural sector, especially in the field of crop diseases.
9. Teaching and Learning Strategies	
Strategies	١- Urging students to obtain information about diseases of field crops from some scientific sites via the Internet. ٢- Using infected plant models brought from infested fields and photographing the models related to the school curriculum. ٣- Using microscopes to help diagnose and identify pathogens. 4- Using modern means in giving lessons, such as a data display device, to learn about the symptoms and signs of the disease and ways of developing the stages of the disease. 5 - A review of the methodological books designated for the initial study

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	method Learning	Evaluation method
1	2+3=5	Root rot and seedling drop, powdery mildew, downy mildew, stem rust, leaf rust, striped rust, covered smut, loose smut	Wheat crop disease	Theoretical study and slide presentation	Daily testing
2	2+3=5	Flag smut, septoria	Wheat crop disease	Using modern methods in giving lessons using a data display	Daily testing

		leaf spot, Glume Rot, Spike Blight, Seed Galls, Streak mosaic Wheat, black spot, Head blight, wheat mosaic		device to learn about the symptoms and signs of the disease and the ways in which the stages of the disease develop.	
3	2+3=5	Root rot and damping-off, powdery mildew, argot, stem rust, covered smut, loose smut, Reticulum blotch, leaf spot, streaking, rhinospora blotch, septoria leaf blotch, dwarfing and yellowing of barley. Gray blotch	Berlay crop disease	Using Data Show to identify disease symptoms and isolate the fungi that cause seedling drop disease (Rhizoctonia Pythium, Fusarium).	Daily testing
4	2+3=5	Blast Rice disease, stem rot, Brown leaf spot, grain and inflorescence rot, root and stem rot, brown leaf spot, sheath .blight, Reem rice	Rice crop disease	Use the Data Show to identify the symptoms and signs of the disease and the ways in which the stages of the disease develop	Daily testing
5	2+3=5	Head smut, Gibrella stem rot, Fusarium stem rot, Diplodia rot, shoot rot diseases, Ear & Kernel Rot, common smut, Maize Dwarf Mosaic disease, damping-off	Corn crop disease	Use the Data Show to identify the symptoms and signs of the disease and the ways in which the stages of the disease develop	Daily testing
6	2+3=5	Charcoal rot, smut cover, Long Smut disease, loose smut. Viral diseases	Sorghum Crop disease	Use the Data Show to identify the symptoms and signs of the disease and the ways in which the stages of the disease develop	Daily testing
7	2+3=5		First Exam		Monthly exam
8	2+3=5	Downy mildew, powdery mildew, rust, rhizobial disc rot, sclerotonic disc rot, charcoal rot, Discs Rot Diseases	Sunflower disease	Use the Data Show to identify the symptoms, examine infected samples, and isolate pathogens	Daily testing
9	2+3=5	Downy Mildew, Rust, Phytophthora rot, Alternaria leaf spot, Downy mildew, safflower rust, cercospora spot, alternaria spot, leaf .spot	Safflower diseases And sesame diseases	Use the Data Show to identify the symptoms, examine infected samples, and isolate pathogens	Daily testing
10	2+3=5	Charcoal rot,	Soybean	Use the Data Show to identify the	Daily testing

		Fusarium wilt, Alternaria blotch, Septoria blotch, Soybean Mosaic Seed and Seedling Rot Yellow rot,Corn rot, Stem and root rot,	diseases And field pistachio diseases	symptoms and signs of the disease and the ways in which the stages of the disease develop	
11	2+3=5	Powdery Mildew, Rust Flax, Fusarium Wilt, Verticillium Wilt, damping-off, Black root rot, Cotton nut diseases	Fiber crop diseases Flax and Cotton	Use the Data Show to identify the symptoms and signs of the disease and the ways in which the stages of the disease develop	Daily testing
12	2+3=5	Wilt and Rot Root, Rust, Ascochyta blight, *Bean* Yellow Mosaic, Broad Bean Mottle disease	Diseases of legume crops Peas and beans	Use the Data Show to identify the symptoms, examine infected samples, and isolate pathogens	Daily testing
13	2+3=5	Sugarcane smut, red rot, long smut, Crown tuber, beet rust, sugar beet yellowing, Curly Top, Rust	Diseases of sugar crops Sugar cane and beets	Use the Data Show to identify the symptoms, examine infected samples, and isolate pathogens	Daily testing
14	2+3=5	Black root rot, root-knotted disease, Tobacco Mosaic, Dodder, Broom rapes,	Diseases of narcotic crops Tobacco	Use the Data Show to identify the symptoms and signs of the disease and the ways in which the stages of the disease develop	Daily testing
15	2+3=5	Alfalfa Diseases, Rust, Alfalfa Mosaic, Downy Mildew	Diseases of Forage crops	Study of diseases spread in crop fields	Monthly exam

11. Course Evaluation

Research material + report = 10 marks + Assignments + quiz = 5 marks
Laboratory work = 5 marks
Monthly practical exam = 15 marks + Monthly theoretical exam = 15 marks

12. Learning and Teaching Resources

Required textbooks (curricular books,if any)	**Lectures prepared by the subject professor and according to the course vocabulary** **Robert F. Neval (1991) Diseases of field crops. Arab Development Institute. 1120 pages**
Main references (sources)	**Mahmoud Musa Abu Arqoub (1992) Plant Diseases (translated version by George Agrios) - Academic Library for Publishing and Distribution - Cairo**
Recommended books and references (scientific journals, reports...)	**Hussein Al-Arousi and others (1985). Practical plant pathology. New Publications House. Alexandria. Egypt Journal of Phytopathology**
Electronic References, Websites	**.Plant Diseases Report** **www.plant pathology.net** **www.Phytopathology** **http://plant diseases** **http://plant diseases** **http://www.ejp.eg.net**

Course Description Form

1. Course Name:

Integrated Pest Management

2. Course Code:

INPM422

3. Semester / Year:

Secand semester 2023/2024

4. Description Preparation Date:

٢٠٢٤/ ١/ ١٥

5. Forms of Attendance:

)Full time (theoretical lecture

6. Number of Studying Hours (Total) / Number of Units (Total)

٣٠

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

Name:Ali Hassan	Email: ali.h.h@uomisan.edu.iq

8. Course Objectives

Course Objectives	• • Giving learners cognitive skills in managing and combating pests in more than one way to control them, keep them below the level of economic damage, and use the best control methods available to obtain a high-quality crop and preserve the environment.

9. Teaching and Learning Strategies

Strategies	9- Use the method of delivering information through lecture 10- Students participate in obtaining information by requesting seminars and scientific reports 11- Training students on the method of logical discussion to reach results 12- Learning through applied field practices .

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding, perception	Historical introduction to pest management	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
2	2	Understanding, perception	General concepts about pest management	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
3	2	Understanding, perception	Concepts of critical economic limit	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written

					exams
4	2	Understanding, perception	Plant resistance to pest	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
5	2	Understanding, perception	Monitoring and forecasting of pests	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
6	2	Understanding, perception	Behavioral control	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
7	2	Written exam	Written exam	Written exam	Written exam
8	2	Understanding, perception	Biological control	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
9	2	Understanding, perception	Control by agricultural methods	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
10	2	Understanding, perception	Control by physical methods	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
11	2	Understanding, perception	Pheromones and attractive bait traps	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
12	2	Written exam	Written exam	Written exam	Written exam
13	2	Understanding, perception	Controls for the use of pesticides in integrated management	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
14	2	Understanding, perception	Examples of integrated pest management programs	Lecture and discussion	Oral exams, seminars, Exams Quick(coz) and written exams
15	2	Understanding, perception	A review general	Lecture and	Oral exams,

				discussion	seminars, Exams Quick(coz) and written exams

11. Course Evaluation	
Distribution of the grade out of 50 according to the tasks assigned to the student, such as homework, .daily, oral, monthly, written exams, reports, etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**Pest management / Dr. Abdel Sattar Arif**
Main references (sources)	**Pest management and control / Dr. Iyad Youssef Al Haj Ismail**
Recommended books and references (scientific journals, reports...)	**Insect pest management / Dr. Muhammad Al-Saeed Saleh Al-Zamiti**
Electronic References, Websites	**All websites of scientific journals and universities interested in this aspect**

Course Description Form

Course Name:	
sticides	
Course Code:	
;T412	
٢٤-٢٠٢٣ **3. Semester / Year:**	
Description Preparation Date: beginning of the first course.	
Forms of Attendance: in-person	
Number of Studying Hours (Total) / Number of Units (Total)	
/ 5	
Course Administrator's Name (mention all, if more than one name)	
me:Assist. Prof.dr. Qusai ttab Madhi	Email: qusay.hattab@uomisan.edu.iq
Course Objectives	
urse jectives	• properties of pesticides and their mechanisms in controlling agricultural pests, including insects, fungi, and plant diseases. • • Environmental and Health Impacts: Explaining the potential negative effects of improper pesticide use on the environment and public health, and how to mitigate these effects through safe and controlled applications. • • Risk Assessment and Safety Management: Teaching students how to assess pesticide-related risks and implement appropriate safety procedures to reduce risks to operators, the environment, and local communities. • • Legislation and Policies: Understanding local and international regulations and policies related to pesticides and how to comply with these laws in the use and marketing of pesticides. • • Modern Technology: Educating students about recent advancements in pesticide technology, such as biopesticides and advanced application techniques. • • Economic Analysis: Understanding the financial and economic costs and benefits related to effective pesticide use in agriculture and achieving desired economic returns through sustainable solutions. • • Awareness and Education: Promoting public awareness among students about the importance of responsible pesticide use

	and sustainable alternatives to traditional pesticides.

Teaching and Learning Strategies

rategies	**Group Discussions: Organizing guided discussions on topics such as the environmental and health impacts of pesticides, evaluating current pesticide policies, and exchanging viewpoints among students to enhance interaction and critical thinking.** **Case Studies: Using real-life case studies to analyze the effects of effective and proper pesticide use in agriculture, encouraging students to propose practical solutions to the presented problems.** **Problem-Based Learning: Presenting specific issues related to pesticides and asking students to develop innovative and sustainable solutions, thereby enhancing their ability to apply knowledge in practical contexts.** **Collaborative Learning: Organizing group projects where students work together to develop plans for sustainable pesticide use, sharing knowledge and skills to achieve outstanding results.** **Educational Technology: Utilizing technological tools such as educational videos to illustrate pesticide application processes and potential impacts.** **Comprehensive Assessment: Employing comprehensive assessment methods including traditional tests, participation evaluations, and project assessments to measure students' understanding and application of the material.**

. Course Structure

ek	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
L	5	**Students should be able to identify different types of agricultural pests (insects, weeds, fungi, bacteria, viruses) and describe the damage they cause to crops.** **Students should be able to explain the concept of the economic threshold**	**Agricultural pests,The damage they cause,Economic threshold**	**Lecture Discussion Scientific activities Dialogue and discussion**	**Interactive assessment Reports Daily quizzes**

		and apply pest control strategies (biological control, chemical control, cultural control, integrated pest management) effectively and .sustainably			
2	5	Pesticides Definition of a pesticide Negative and positive aspects of pesticides Historical review of pesticide use	Students should be able to define pesticides and explain their benefits in increasing agricultural productivity and improving crop quality, as well as recognize their drawbacks such as environmental pollution and effects on health and non-target .organisms Students should be able to summarize the history of pesticide use, from natural substances in ancient times to modern developments in chemical and biological pesticides, with a focus on shifts towards sustainable and environmentally .friendly usage	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes

3	5	Points to Follow in Chemical Pest :Control	Students should be able to identify and understand the necessary safety guidelines when using pesticides, including recommended dosages, personal protective equipment, and .safety intervals	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
4	5	Toxicology Acute toxicity Chronic toxicity Pesticide degradation	Students should be able to define acute toxicity and chronic toxicity, and explain the differences between them in terms of health effects and duration of .exposure Students should be able to explain the process of pesticide degradation and understand the factors that affect the rate and extent of pesticide breakdown in the environment, as well as its impact on health and the .environment	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
5	5	Pesticide metabolism Metabolic enzymes General pathways of metabolism	Students should be able to explain the process of pesticide metabolism in living organisms and identify the key enzymes involved in these .processes	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes

			Students should be able to describe the general pathways of pesticide metabolism, including oxidation, reduction, and conjugation processes, and how these processes affect the toxicity and effectiveness of pesticides in living .organisms		
6	5	Classification of pesticides Classification based on the pest Toxicity : Mode of action : Formulations : Role of additives : in activating or inhibiting pesticides	Students should be able to identify and classify pesticides based on the targeted pest (insect, fungal, herbaceous, bacterial), level of toxicity (low, medium, high), and mode of action (contact, systemic, .(ingestive Students should be able to describe pesticide formulations (liquid, solid, granular) and explain the role of additives in enhancing or inhibiting the effectiveness of chemical .pesticides	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes

7	5	Systemic pesticides	Students should be able to explain the concept of systemic pesticides and what distinguishes them from other types of .pesticides	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
8	5	Absorption and distribution of chemical pesticides and the factors .affecting them	Students should be able to explain how chemical pesticides are absorbed by living organisms and how they are distributed to different tissues .and organs	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
9	5	Insecticides Inorganic insecticides Natural organic insecticides (plant-(based and oils Organochlorine insecticides Organophosphorus insecticides Carbamate insecticides Pyrethroid insecticides Nicotine-based insecticides Insect growth : regulators	Students should be able to classify types of insecticides according to different categories such as inorganic insecticides, natural organic insecticides (plant-based and oils), organochlorine insecticides, organophosphorus insecticides, carbamate insecticides, pyrethroid insecticides, and	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes

			nicotine-based .insecticides		
0	5	Insect growth regulators	Students should be able to define insect growth regulators and explain how they affect the growth and development of insects by modifying natural .growth processes	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
1	5	Fungicides Herbicides	Students should be able to define fungicides, classify them according to the types of fungi they target and their modes of action (such as systemic and contact fungicides), and explain how they are used to control .fungal diseases Students should be able to define herbicides, classify them according to the types of weeds they target and their modes of action (such as selective and non-selective herbicides), and explain how they are used to control weeds and improve crop	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes

			.productivity		
2	5	Rodenticides Nematocides	Students should be able to define rodenticides, classify them according to the types of rodents they target and their modes of action (such as toxicants and attractants), and explain how they are used to control rodent populations .and protect crops Students should be able to define nematocides, classify them according to the types of nematodes they target and their modes of action (such as chemical and biological nematocides), and explain how they are used to control nematodes and protect plants from .their damage	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
3	5	Miteicides	Students should be able to define miteicides, classify them according to the types of mites they target and their modes of action (such as chemical and biological miteicides), and explain how they are used to control mite populations .and protect crops	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes
4	5	Pest resistance to	Students should	Lecture	Interactive

		pesticides	be able to define the concept of pest resistance, and explain how pests develop resistance to chemical pesticides through genetic changes and natural .selection	Discussion Scientific activities Dialogue and discussion	assessment Reports Daily quizzes
5	5	Environmental pollution from chemical pesticides	students should be able to define environmental pollution caused by chemical pesticides and explain how it affects soil, water, air, and non-target .organisms	Lecture Discussion Scientific activities Dialogue and discussion	Interactive assessment Reports Daily quizzes

. Course Evaluation

stribution of the grade out of 100 according to the tasks assigned to the student, ch as daily preparation, daily quizzes, oral exams, monthly exams, written exams, orts, etc

. Learning and Teaching Resources

quired textbooks (curricular oks, if any)	Pesticides: A. Prof. Nizar Mustafa Al-Mallah and Awad Shaaban, 1994
in references (sources)	Pesticides: Dr. Khaled Mohamed Al-Adel, 2006
commended books and references ientific journals, reports...)	
ctronic References, Websites	Britannica https://www.britannica.com

Course Description Form

1. Course Name:

ENGLISH language 4

2. Course Code:

ENGL401

3. Semester / Year:

2023-2024 (First course)

4. Description Preparation Date:

The beginning of the first course

1. Forms of Attendance:

Attending in college

6. Number of Studying Hours (Total) / Number of Units (Total)

15 / 1

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

Name: Dr. Farhan Jasim Mohammed	**Email: farhanalhakim@uomisan.edu.iq**

8. Course Objectives

Course Objectives	**1- Providing the student with academic writing skills and English grammar** **2-Providing the student with the skill of speaking the English language** **3-Providing the student with the skill of listening to the English language** **4-Providing the student with reading and reasoning in the English language**

9. Teaching and Learning Strategies

Strategies	**Using modern means to deliver information to students and using field work to learn more about the course methodology, which is part of modern education, so that complete information about the course is available after the student .graduates**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	1	Understanding, perception, practical application	forming questions with do/does and is/are	Lecture and discussion	Oral exams, quizzes and written exams
2nd	1	Understanding, perception, practical application	adjectives	Lecture and discussion	Oral exams, quizzes and written exams
3rd	1	Understanding, perception, practical application	Adverbs in language	Lecture and discussion	Oral exams, quizzes and written exam
4th	1	Understanding, perception,	Used to, Using Must, Have to and Should - Modal Verbs	Lecture and discussion	Oral exams, quizzes and

		practical application			written exam
5th	1	Understanding, perception, practical application	Degrees of Comparison of Adjectives	Lecture and discussion	Oral exams, quizzes and written exam
6th	1	Understanding, perception, practical application	Nouns: countable and uncountable	Lecture and discussion	Oral exams, quizzes and written exam
7th	1	written exam	First month exam	written exam	written exam
8th	1	Understanding, perception, practical application	Reading exercise	Lecture and discussion	Oral exams, quizzes and written exam
9th	1	Understanding, perception, practical application	Writing exercise	Lecture and discussion	Oral exams, quizzes and written exam
10th	1	Understanding, perception, practical application	Practice in speaking	Lecture and discussion	Oral exams, quizzes and written exam
11th	1	Understanding, perception, practical application	Determiners, Interjections, Prepositions	Lecture and discussion	Oral exams, quizzes and written exam
12th	1	written exam	Second month exam		
13th	1	Understanding, perception, practical application	Sentence Structure	Lecture and discussion	Oral exams, quizzes and written exam
14th	1		Gerunds and Infinitives	written exam	written exam
11th	1	Understanding, perception, practical	Types of Sentences, voice, mood, Parallelism	Lecture and discussion	Oral exams, quizzes and written exam

11. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as .homework, daily, oral, monthly written exams, final written exam, reports, etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	New headway beginner Liz and John Soars, Paul Hancock
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Access to recent research, articles and studies related to modern learning methods
Electronic References, Websites	All English language learning sites