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

Description of the academic program Plant Protection Department

2025-2026

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

Academic Program Description Form

University Name: Al-Muthanna University
Faculty/Institute: College of Agriculture
Scientific Department: Department of Plant Protection
Academic or Professional Program Name: Bachelor in Plant Protection
Final Certificate Name: Bachelor degree in Plant Protection
Academic System: Quarterly
Description Preparation Date: 04 /01 / 2026
File Completion Date: 04 /01 / 2026

Signature:
Head of Department Name:
Dr. Ali Ajil Jassim
Date: 05 /01 /2026

Signature:
Scientific Associate Name
Dr. Hanoun Nahi Kazem
Date: 05 /01 /2026

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Dr. Saad Kazem Jabbar
Date: 05 /01 /2026

Signature:

Approval of the Dean
Dr. Haydar Abdalhussain Al-Mughir

1. Program Vision

The Plant Protection Department aspires to be the best in learning and scientific research and to provide valuable scientific advice and consultations that contribute to raising agricultural crops to the highest levels and protecting crops from the danger of numerous pests that threaten them for the benefit of society.

2. Program Mission

The Plant Protection Department aspires to be the best in learning and scientific research and to provide valuable scientific advice and consultations that contribute to raising agricultural crops to the highest levels and protecting crops from the danger of numerous pests that threaten them for the benefit of society.

3. Program Objectives

1. Deepening faith in God and spiritual and moral values.
2. Promoting education on citizenship, belonging to the homeland, and preserving its institutions.
3. Providing students with appropriate experience in teaching methods, techniques, and skills.
4. Developing the performance and creative abilities of students in the linguistic, educational, cognitive, artistic and technical aspects.
5. Providing students with advanced academic knowledge to enable them to research and teach in the subject of their specialization.
6. Disseminating knowledge among the classes of society about the importance of the safety of agricultural products, such as their freedom from diseases, pesticide residues, insect infestations, etc.
7. Conducting scientific research that contributes to finding alternative solutions to the use of pesticides.

8. Developing agricultural awareness and workers in the agricultural field and disseminating modern information to obtain the best agricultural products.
9. Cooperation with other government agencies, such as the extension and research center and the agricultural directorates in Al-Muthanna Governorate, in order to exchange experiences and knowledge and learn about the latest developments in the field of agriculture and plant protection.

4. Program Accreditation

The department is in the process of obtaining programmatic accreditation through standards launched by the Ministry of Higher Education and Scientific Research.

5. Other external influences

Central admission

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	18	20	27.27	
College Requirements	11	30	11.67	
Department Requirements	37	99	56.06	
Summer Training	–	–	–	
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	Practical
First	0c24102	Mathematic 1	30	–

First	**0c24101**	Soil principles	**30**	**45**
First	**0014101**	Principles of general entomology 1	**30**	**45**
First	**0024102**	Principles of general entomology 2	**30**	**45**
First	**U014103**	Safety and biosecurity	**15**	–
First	**U014101**	Human rights and democracy	**15**	–
First	**U024103**	Baath system crimes	**15**	–
First	**U024102**	Arabic Language	**30**	–
First	**0014102**	Zoology	**30**	**45**
First	**0C24103**	organic chemistry	**30**	**45**
First	**U014102**	Computer fundamentals 1	**30**	–
First	**0024101**	General plant basics	**30**	**45**
First	**0c14101**	Basics of gardening and landscaping	**30**	**45**
First	**U014104**	English language	**30**	–
First	**U024101**	Computer fundamentals 2	**30**	–
Second	**0C14203**	Statistics	**30**	**30**
Second	**0014201**	Medical and veterinary entomology	**30**	**30**
Second	**0014204**	Agricultural machinery and equipment	**30**	**30**
Second	**0014202**	Plant physiology	**30**	**30**
Second	**0024201**	Insect taxonomy	**30**	**30**
Second	**U024201**	English	**30**	–
Second	**0C24202**	Basics of field crops	**30**	**30**
Second	**0C24201**	Principles of animal production	**30**	**30**
Second	**0024203**	analytical chemistry	**30**	**30**
Second	**0014203**	Plant nutrition	**30**	**30**
Second	**U024202**	Computer	**30**	–

		applications 2		
Second	**0C14201**	Microbiology	**30**	**30**
Second	**0024202**	Plant classification	**30**	**30**
Second	**0C14202**	Agricultural guidance	**30**	–
Second	**U014201**	Computer applications 1	**30**	–
Third	**0024303**	Biotechnology	**30**	**30**
Third	**0014305**	Insect physiology	**30**	**30**
Third	**0024304**	Nematodes	**30**	**30**
Third	**0024307**	Bees breeding	**30**	**30**
Third	**0C14301**	Design and analysis of experiments	**30**	**30**
Third	**0024302**	Mycology II	**30**	**30**
Third	**0024301**	Plant diseases (Plant pathology)	**30**	**30**
Third	**0024306**	Weed control	**30**	**30**
Third	**0014301**	Biochemistry	**30**	**30**
Third	**0014303**	Plant genetics	**30**	**30**
Third	**U014301**	English	**30**	–
Third	**0024305**	Plant Breeding and Improvement	**30**	**30**
Third	**0014304**	Ecology	**30**	**30**
Fourth	**0024406**	Integrated pests management	**30**	–
Fourth	**U024401**	Professional Ethics	**15**	–
Fourth	**0014401**	Biological Control	**30**	**30**
Fourth	**0014403**	Field crop diseases	**30**	**30**
Fourth	**0014402**	Pesticides	**30**	**30**
Fourth	**0024403**	Plant viruses	**30**	**30**
Fourth	**U024402**	English	**30**	–
Fourth	**0024405**	Insects Ecology	**30**	**30**
Fourth	**U014402**	sustainable development	**30**	–
Fourth	**0014405**	Store pests	**30**	**30**
Fourth	**0024404**	Orchard insects	**30**	**30**
Fourth	**0014406**	Crop Insects	**30**	**30**

Fourth	**0014404**	Vegetables diseases	**30**	**30**
Fourth	**0024402**	Acarology	**30**	**30**

8. Expected learning outcomes of the program

Knowledge	
A- Cognitive objectives	A1- Learn about the concept of plant diseases and insect infections and methods of diagnosing them A2- Learn about ways to combat these diseases and other agricultural pests and methods of preventing them A3- Learn about the concept of integrated management to control the threat of agricultural pests A4- Identify the nature of the damage and losses in agricultural production caused by these pests A5- Identifying the reasons for the infestation of fields with these biotic or abiotic pathogens A6-Describe the life cycle of pathogens and insects that infect fields and identify the harmful source of infection
Skills	
B – The program's skill objectives	B1 - Thinking skills. B2 - Scientific research skills B3 - Teaching skills
Ethics	
C- Evaluation	C1 - Theoretical tests C 2 - Practical tests C3 - Weekly short tests C 4- Reports and studies

9. Teaching and Learning Strategies

Explanation and clarification

self education

Giving lectures

10. Evaluation methods

Theoretical tests

Practical tests Reports and studies

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Dr.Ali Faraj Jubair	Plant Protection	Plant diseases (mycotoxin)			✔	
Dr. Muhammad Khalil Ibrahim	plant production	Plant protection (insects)			✔	
Mahmoud Thamer Abd	Field crops	fodder crops			✔	
Dr. Khalid Jaber AbdelRazzaq	Plant Protection	insects			✔	
Dr.Ahmed Shamkhi Jabbar	Plant Protection	Insects			✔	
Dr.Ali Ajil Jassim	Plant Protection	Plant diseases			✔	
Dr.Alaa Hussein Abed	Plant Protection	Insects			✔	
Dr.Malik hasan karem	Plant Protection	Plant viruses			✔	
Dr.saad manea enad	Plant Protection	Plant diseases			✔	
Dr.Lafta Awad Atshan	Plant Protection	Insects			✔	

Professional Development
Mentoring new faculty members
Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.
Professional development of faculty members
Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc. Such as 1- Teamwork: Working within the group effectively and actively 2- Time management: Managing time effectively and setting priorities with the ability to work organized and within specified dates. 3- Leadership: The ability to direct and motivate others 4- Independence at work 5- Negotiation and persuasion, meaning the student's ability to persuade others and discuss to reach an agreement.

12. **Acceptance Criterion**
Central admission by the Ministry of Higher Education and Scientific Research.

13. **The most important sources of information about the program**
Guide books and other resources in the free education unit and the college and university library.

14. Program Development Plan
1. Developing skills for teachers. 2. Modern sources. 3. Specialized courses and seminars. 4. Agricultural scientific conferences.

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
First	0c24102	Mathematic 1	Basic				✔				✔				✔
	0c24101	Soil principles	Basic				✔				✔				✔
First	0014101	Principles of general entomology 1	Basic				✔				✔				✔
	0024102	Principles of general entomology 2	Basic				✔				✔				✔
First	U014103	Safety and biosecurity	Basic				✔				✔				✔
	U014101	Human rights and democracy	Basic				✔				✔				✔
First	U024103	Baath system crimes	Basic				✔				✔				✔

	U024102	Arabic Language	Basic				✔				✔				✔
First	**0014102**	Zoology	Basic				✔				✔				✔
First	**0C24103**	organic chemistry	Basic				✔				✔				✔
First	**U014102**	Computer fundamentals 1	Basic				✔				✔				✔
First	**0024101**	General plant basics	Basic				✔				✔				✔
First	**0c14101**	Basics of gardening and landscaping	Basic				✔				✔				✔
First	**U014104**	English language1	Basic				✔				✔				✔
First	**U024101**	Computer fundamentals 2	Basic				✔				✔				✔
Second	**0C14203**	Statistics	Basic				✔				✔				✔
Second	**0014201**	Medical and veterinary entomology	Basic				✔				✔				✔
Second	**0014204**	Agricultural machinery and equipment	Basic				✔				✔				✔

Second	**0014202**	Plant physiology	Basic				✔				✔				✔
Second	**0024201**	Insect taxonomy	Basic				✔				✔				✔
Second	**U024201**	English	Basic				✔				✔				✔
Second	**0C24202**	Basics of field crops	Basic				✔				✔				✔
Second	**0C24201**	Principles of animal production	Basic				✔				✔				✔
Second	**0024203**	analytical chemistry	Basic				✔				✔				✔
Second	**0014203**	Plant nutrition	Basic				✔				✔				✔
Second	**U024202**	Computer applications 2	Basic				✔				✔				✔
Second	**0C14201**	Microbiology	Basic				✔				✔				✔
Second	**0024202**	Plant classification	Basic				✔				✔				✔
Second	**0C14202**	Agricultural guidance	Basic				✔				✔				✔
Second	**U014201**	Computer applications 1	Basic				✔				✔				✔

Third	**0024303**	Biotechnology	Basic				✔				✔				✔
Third	**0014305**	Insect physiology	Basic				✔				✔				✔
Third	**0024304**	Nematodes	Basic				✔				✔				✔
Third	**0024307**	Bees breeding	Basic				✔				✔				✔
Third	**0C14301**	Design and analysis of experiments	Basic				✔				✔				✔
Third	**0024302**	Mycology II	Basic				✔				✔				✔
Third	**0024301**	Plant diseases (Plant pathology)	Basic				✔				✔				✔
Third	**0024306**	Weed control	Basic				✔				✔				✔
Third	**0014301**	Biochemistry	Basic				✔				✔				✔
Third	**0014303**	Plant genetics	Basic				✔				✔				✔
Third	**U014301**	English	Basic				✔				✔				✔
Third	**0024305**	Plant Breeding and Improvement	Basic				✔				✔				✔

Third	**0014304**	Ecology	Basic				✔				✔				✔
Fourth	**0024406**	Integrated pests management	Basic				✔				✔				✔
Fourth	**U024401**	Professional Ethics	Basic				✔				✔				✔
Fourth	**0014401**	Biological Control	Basic				✔				✔				✔
Fourth	**0014403**	Field crop diseases	Basic				✔				✔				✔
Fourth	**0014402**	Pesticides	Basic				✔				✔				✔
Fourth	**0024403**	Plant viruses	Basic				✔				✔				✔
Fourth	**U024402**	English	Basic				✔				✔				✔
Fourth	**0024405**	Insects Ecology	Basic				✔				✔				✔
Fourth	**U014402**	sustainable development	Basic				✔				✔				✔
Fourth	**0014405**	Store pests	Basic				✔				✔				✔
Fourth	**0024404**	Orchard insects	Basic				✔				✔				✔
Fourth	**0014406**	Crop Insects	Basic				✔				✔				✔

Fourth	**0014404**	Vegetables diseases	Basic				✔				✔				✔
Fourth	**0024402**	Acarology	Basic				✔				✔				✔

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

Course Description Form

1. Course Name:
Mathematic 1
2. Course Code:
0c24102
3. Semester / Year:
First Semester / First Year
4. Description Preparation Date:
28/2/2024
5. Available Attendance Forms:
Actual attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
2 Theoretical / 2 Units
7. Course administrator's name (mention all, if more than one name)
Name: **Lecturer**. Anmar Hamoudi Kadhim Email: anmarjhayl@mu.edu.iq
8. Course Objectives

Course Objectives	1- Possessing the skill of thinking and having the ability to find solutions using the correct laws and mathematical operations. 2- Learn about methods of calculating matrices and functions and their types. 3- Identify applications related to matrices and types of functions. 4- Learn how to draw a function 5- Using new mathematical methods to perform solutions.
9. Teaching and Learning Strategies	
Strategy	1. Explaining and clarifying the mathematical concept and stating the laws related to it. 2. Give some examples related to the topic. 3. Involve students during the lecture in solving examples and problems using mathematical laws. 4. Giving them homework and exercises related to the topic that was discussed in the lecture. 5. Conduct daily tests for students in addition to monthly tests.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	2	Matrix	Mathematic 1	Explanation and presentation Model and lecture	Examination
2nd	2	Types of Matrix	Mathematic 1	Explanation and presentation Model and lecture	Examination
3rd	2	Computational methods use In solving matrices	Mathematic 1	Explanation and presentation Model and lecture	Examination
4th	2	Applications in solving functions and finding matrix inverses	Mathematic 1	Explanation and presentation Model and lecture	Examination
5th	2	Mathematical functions	Mathematic 1	Explanation and presentation Model and lecture	Examination
6th	2	Function components	Mathematic 1	Explanation and presentation Model and lecture	Examination

7th	2	Types of Mathematical function	Mathematic 1	Explanation and presentation Model and lecture	Examination
8th	2	Differential relations used In the function	Mathematic 1	Explanation and presentation Model and lecture	Examination
9th	2	Higher ranks of Function	Mathematic 1	Explanation and presentation Model and lecture	Examination
10th	2	Partial derivatives	Mathematic 1	Explanation and presentation Model and lecture	Examination
11th	2	Function applications	Mathematic 1	Explanation and presentation Model and lecture	Examination
12th	2	Increasing, decreasing, and endings Great and small	Mathematic 1	Explanation and presentation Model and lecture	Examination
13th	2	Concavity and convexity curves in the function	Mathematic 1	Explanation and presentation Model and lecture	Examination
14th	2	Drawing functions	Mathematic 1	Explanation and presentation Model and lecture	Examination
15th	2	Solved problems and examples of graphing the function	Mathematic 1	Explanation and presentation Model and lecture	Examination

11. Course Evaluation	
1-Theoretical tests 30 2- Daily tests 10 3- Homework 10 4- Final exam 50	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1- George B. Thomas, 2003. Calculus and Analytic Geometry.
Main references (sources)	1- Theories and problems in advanced calculus. 2008. Murray R. SPIEGEL. Eighth Arabic edition. International House for Cultural Investments. Egypt. 2- 3000 solved problems in calculus. Elliot Mendelsohn. International Academy. Beirut, Lebanon.
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic References, Websites	

Course Description Form

1. Course Name:

Soil principles

2. Course Code:

0c24101

Semester / Year:

First Semester / First Year

3. Description Preparation Date:

28/2/2024

4. Available Attendance Forms:

Actual attendance

5. Number of Credit Hours (Total) / Number of Units (Total)

2 theoretical 2 Practical 3 Units

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

Name: Lecturer Dr.. Anmar Hamoudi Kadhim
Email: anmarjhayl@mu.edu.iq

7. Course Objectives

The student gets know soil science	• The student gets to know soil science • The student should classify the factors and processes of soil formation • The student should separate the various factors in the formation of soil • For the student to learn about how soil is formed and developed • For the student to evaluate the different types of soil

8. • The student should classify the factors and processes of soil formation

Strategy	1- Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning metho

9. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	4	The student will be familiar with an introduction to soil science and the emergence and development of soil	Soil principles	Explanation, presentation of the model and lecture	the Exam
Second	4	The student gets to know the types of factors and soil formation processes	Soil principles	Explanation, presentation of the model and lecture	the Exam
Third	4	The student gets to know the physical	Soil principles	Explanation, presentation of the	the Exam

		properties of soil		model and lecture	
Fourth	4	The student gets to know the chemical properties of soil	Soil principles	Explanation, presentation of the model and lecture	the Exam
Fifth	4	The student gets to know the biological characteristics of soil	Soil principles	Explanation, presentation of the model and lecture	the Exam
Sixth	4	The student gets to know soil salinity	Soil principles	Explanation, presentation of the model and lecture	the Exam
Seventh	4	The student will be familiar with the reclamation of saline soils	Soil principles	Explanation, presentation of the model and lecture	the Exam
Eighth	4	The student gets to know the types of soil water	Soil principles	Explanation, presentation of the model and lecture	the Exam
Ninth	4	The student gets to know soil colloids	Soil principles	Explanation, presentation of the model and lecture	the Exam
Tenth	4	The student will learn about the effect of humidity on plants	Soil principles	Explanation, presentation of the model and lecture	the Exam
Eleventh	4	The student gets to know soil fertility For the student to recognize the most important reasons for low soil productivity	Soil principles	Explanation, presentation of the model and lecture	the Exam
Twelfth	4	For the student to recognize the most important reasons for low soil productivity	Soil principles	Explanation, presentation of the model and lecture	the Exam
Thirteenth	4	The student will know how to feed plants	Soil principles	Explanation, presentation of the model and lecture	the Exam
Fourteenth	4	The student gets to know the classification of soils	Soil principles	Explanation, presentation of the model and lecture	the Exam
Fifteenth	4	For the student to become familiar with educational administration	Sustainable development	Explanation, presentation of the model and lecture	the Exam

10. Course Evaluation

Theoretical tests 40
2- Practical tests -
3- Reports and studies 10
4- Final exam 50

11. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals
Electronic References, Websites	Soil Science Society Of America Library Genesis

Course Description Form

1. Course Name:
Principles of general entomology 1
2. Course Code:
0014101
3. Semester / Year:
First semester/2023−2024
4. Description Preparation Date:
14/2/2024
5. Available Attendance Forms:
Mandatory official working hours
6. Number of Credit Hours (Total) / Number of Units (Total)
Theoretical 30 + practical 45 = 75 hours Number of Units = 3
7. Course administrator's name (mention all, if more than one name)
Name: MOHAMD KHALEL IBRAHIM MOHAMED Email: moh_kh15@mu.edu.iq
8. Course Objectives

Course Objectives	• Introducing the student to the basic principles of insects. • The student gets to know the different stages of insects • Introducing the student to insect families and their importance. • Introducing the student to the internal and external structure of insects.
9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives A1- Learn about the concept of insects A2- Learn about methods for diagnosing insects and methods for determining their damage A3- Learn about the concept of entomology and controlling insect danger A4- Learn about the nature of the damage and losses caused by insects in the general environment and what these insects cause to human life and property. A5-Describe the life cycle of insects and identify the harmful phase B - The program's skill objectives B1 - Knowing the concept of insects, especially insects in hot environments B2 - Enabling students to diagnose infestations and the possibility of isolating and diagnosing insects B3 - The student's ability to estimate the limit that leads to reducing harm to humans animals Teaching and learning methods Method of giving lectures Explanation and clarification How to display insect models How to present scientific films about medical insects Self-learning method Method of collecting and diagnosing samples Evaluation methods Theoretical tests

Practical tests
Reports and studies

C- Emotional and value goals.
C1- The ability to analyze results and diagnose insects
C2- Acquiring skills about insects in public environments
C3- The possibility of applying skills in identifying insect types
C4- A skill to think according to the student's ability. This aims for the student to understand when and how to think about the processes of detecting and identifying insects and other types of arthropods.
Teaching and learning methods

1- How to display insect models and scientific films related to the subject
2- Explanation and clarification
3- Brainstorming
4- The appropriate thinking and decision-making skill strategy, meaning that the stud makes a good decision when thinking about diagnosing a pest and the process of combating it and thinking about the consequences of this decision and its environmen effects.

Evaluation methods

Theoretical tests
Practical tests
Weekly short tests
Reports and studies

D - General and qualifying transferable skills (other skills related to employability and personal development).
D1-Verbal communication, which includes:
1- The ability to express ideas clearly and confidently in speech
2- Teamwork
3- Work confidently within the group
4- Collect information systematically and scientifically to establish principles for solvi the problem
5- Initiative: The motivation to work and the ability to take initiative
D2- Written communication:
1- The ability to express oneself clearly in writing
2- Planning and organizing / planning, organizing and implementing activities
3- Flexibility and adaptation to changing situations and different environments
4- Effectively manage time, prioritize tasks, and be able to work within specified deadlines
Teaching and learning methods
Explanation and clarification
self education
Giving lectures

Evaluation methods
Theoretical tests
Practical tests
Reports and studies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Learn about an introduction to insects and the factors that helped them spread. theoretical Identify the types of	Practical lecture, discussion,	oral examinations

			some laboratory equipment. practical		
Second	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Identify the benefits and harms of insects. theoretical Continue identifying other insects. practical	Practical lecture and discussion	oral examinations
Third	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Identify some phenotypi characteristics of arthropods and insects. theoretical Learn about methods of killing insects. Practical	Practical lecture, discussion,	oral examinations
Fourth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Recognizing the external appearance of insects. theoretical Learn about methods of catching insects. Practical	Practical lecture and discussion	oral examinations
Fifth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	theoretical test 1. Practical test 1.	examination	writing examinations
Sixth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Identify some insect body appendages. theoretical Anatomy of insects and identifying the main parts of the insect body. practical	Practical lecture, discussion,	oral examinations
Seventh	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Identify the main insect body regions. theoretical Identifying the types of insect fishing nets. Practical	Practical lecture, discussion,	oral examinations
Eighth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Identify the types of antennae in insects. theoretical Diagnosing the types of legs in insects. practical	Practical lecture and discussion	oral examinations
Ninth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Identify the types of legs in insects. theoretical Students identify the types of wings in insects. practical	Practical lecture, discussion,	oral examinations
Tenth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Identify the mechanics of flight in insects. theoretical Examining the roles of insects in different systems. Practical	Practical lecture and discussion	oral examinations
Eleventh	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Identifying wing veining in insects. theoretical Making slides for different insect parts. practical	Practical lecture, discussion,	oral examinations
Twelfth	2theoretical	memorizing,	Identify wings in	Practical lecture	oral examinations

	+3 practical	understanding, analyzing, and applying	insects. theoretical How to use insect fishing nets. practical	and discussion	
Thirteenth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Identifying the abdomen and its appendages in insects. theoretical Identify methods of preserving insect models. practical	Practical lecture, discussion,	oral examinations
Fourteenth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Identify the types of transformation and morphology in insects. theoretical Learn how to upload insects to insect pins. Practical	Practical lecture and discussion	oral examinations
Fifteenth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	theoretical test2. Practical test 2.	examination	writing examinations

11. Course Evaluation	
Attendance 5 + Daily exams and assignments 2 + Reports 3 + Practical exam 15 + Monthly exam 25 = 50 quest The final exam is 20 practical + 30 theoretical	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Book of principles of general entomology
Main references (sources)	1. Book of general insects
Recommended books and references (scientific journals, reports…)	1. Entomology book. 2. Insect basics book.
Electronic References, Websites	The free encyclopedia Some of the agricultural sites interested in the field of insects.

Course Description Form

1. Course Name:	
Principles of general entomology 2	
2. Course Code:	
0024102	
3. Semester / Year:	
First semester/2023−2024	
4. Description Preparation Date:	
2/14/2024	
5. Available Attendance Forms:	
Mandatory official working hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Theoretical 30 + practical 45 = 75 hours Number of Units=3	
7. Course administrator's name (mention all, if more than one name)	
Name: MOHAMD KHALEL IBRAHIM MOHAMED Email: moh_kh15@mu.edu.iq	
8. Course Objectives	
Course Objectives	• Introducing the student to the basic principles of insects. • The student gets to know the different stages of insects • Introducing the student to insect families and their importance. • Introducing the student to the internal and external structure of insects.
9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives A1- Learn about the concept of insects A2- Learn about methods for diagnosing insects and methods for determining their damage A3- Learn about the concept of entomology and controlling insect danger A4- Learn about the nature of the damage and losses caused by insects in the general environment and what these insects cause to human life and property. A5-Describe the life cycle of insects and identify the harmful phase B - The program's skill objectives B1 - Knowing the concept of insects, especially insects in hot environments B2 - Enabling students to diagnose infestations and the possibility of isolating and diagnosing insects B3 - The student's ability to estimate the limit that leads to reducing harm to humans and animals Teaching and learning methods Method of giving lectures Explanation and clarification How to display insect models How to present scientific films about medical insects Self-learning method Method of collecting and diagnosing samples Evaluation methods Theoretical tests Practical tests Reports and studies C- Emotional and value goals. C1- The ability to analyze results and diagnose insects

C2- Acquiring skills about insects in public environments
C3- The possibility of applying skills in identifying insect types
C4- A skill to think according to the student's ability. This aims for the student to understar when and how to think about the processes of detecting and identifying insects and other typ of arthropods.

Teaching and learning methods

1- How to display insect models and scientific films related to the subject
2- Explanation and clarification
3- Brainstorming
4- The appropriate thinking and decision-making skill strategy, meaning that the student ma a good decision when thinking about diagnosing a pest and the process of combating it and thinking about the consequences of this decision and its environmental effects.

Evaluation methods

Theoretical tests
Practical tests
Weekly short tests
Reports and studies

D - General and qualifying transferable skills (other skills related to employability and perso development).
D1-Verbal communication, which includes:
1- The ability to express ideas clearly and confidently in speech
2- Teamwork
3- Work confidently within the group
4- Collect information systematically and scientifically to establish principles for solving the problem
5- Initiative: The motivation to work and the ability to take initiative
D2- Written communication:
1- The ability to express oneself clearly in writing
2- Planning and organizing / planning, organizing and implementing activities
3- Flexibility and adaptation to changing situations and different environments
4- Effectively manage time, prioritize tasks, and be able to work within specified deadlines

Teaching and learning methods

Explanation and clarification
self education
Giving lectures

Evaluation methods

Theoretical tests
Practical tests
Reports and studies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Identifying the reproductive system in insects - types of reproduction. theoretical Using modern methods to identify all stages of insect species development. practical	Practical lecture, discussion	oral examinations
second	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Using modern scientific methods to identify and describe the stages of immature insects (egg, larva, pupa) - types of larvae, types of pupae... theoretical	Practical lecture and discussion	oral examinations

			Growth, transformation, and identifying types of development in insects. practical		
Third	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Identifying the types of metamorphosis, transformation, or evolution in insects. Theoretical Identifying and studying the most important types of larvae. Practical	Practical lecture, discussion ,	oral examinations
Fourth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Modern methods of classifying non-evolved insects - the most important sub-orders - (silverfish, jumping tail). theoretical Identifying and studying the most important types of pupal virgins. Practical	Practical lecture and discussion	oral examinations
Fifth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	theoretical test 1. Practical test 1.	examinati on	writing examination s
Sixth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Classification of insects with gradual development, with examples of their orders. theoretical The most important tools used in collecting insects. practical	Practical lecture, discussion ,	oral examinations
Seventh	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Classification of insects with and without development, with examples of their orders. theoretical A field tour to collect information about the different types of insect orders. Practical	Practical lecture, discussion ,	oral examinations
Eighth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Classification of fully developed insects and identifying some examples of their orders. theoretical Dividing the collected insects and placing them into groups according to their modern taxonomic key to enable the student to gain diagnostic skills. practical	Practical lecture and discussion	oral examinations
Ninth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	For complete development, the most important orders are the Coleoptera and the Hymenoptera. theoretical Breeding and propagating cockroaches using modern laboratory methods is practical	Practical lecture, discussion ,	oral examinations
Tenth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Complete evolution of the order Diptera and fleas. theoretical Examining the roles of insects in different systems. Practical	Practical lecture and discussion	oral examinations
Eleventh	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Detailed follow-up to predict the sudden increase in insect species, especially migratory ones. theoretical Making slides for various insect devices. practical	Practical lecture, discussion ,	oral examinations
Twelfth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Complete evolution of the order Lepidoptera and Lepidoptera. theoretical - Transformation and its types. practical	Practical lecture and discussion	oral examinations
Thirteenth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Environmental factors affecting insect life. theoretical Identifying the types of caterpillars. Practical	Practical lecture, discussion ,	oral examinations

Fourteenth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	Modern methods of pest control. theoretical Identify the types of virgins. practical	Practical lecture and discussion	oral examinations
Fifteenth	2theoretical +3 practical	memorizing, understanding, analyzing, and applying	theoretical test2. Practical test 2.	examinati on	writing examination s

11. Course Evaluation	
Attendance 5 + Daily exams and assignments 2 + Reports 3 + Practical exam 15 + Monthly exam 25 = 50 quest The final exam is 20 practical + 30 theoretical	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Book of principles of general entomology
Main references (sources)	1. Book of general insects
Recommended books and references (scientific journals, reports…)	1. Entomology book. 2. Insect basics book.
Electronic References, Websites	The free encyclopedia Some of the agricultural sites interested in the field of insects.

Course Description Form

1. Course Name:
Safety and biosecurity
2. Course Code:
U014103
3. Semester / Year:
The first stage/spring semester
4. Description Preparation Date:
26/2/2024
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
15 hours. Number of units: 1
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Jassim Kassim Menati Email: jasimiraqe@mu.edu.iq
8. Course Objectives

Course Objectives	• **Teaching students about safety, biosecurity, biological risks, and risk management methodology, developing a biosafety program**
9. Teaching and Learning Strategies	
Strategy	1 Explanation and clarification 2 Lecture method 3Student groups 4Practical lessons in laboratories

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Theoretical lecture	General objectives of occupational safety and health	A lecture	Quiz
2	2	Theoretical lecture	Biosafety, its goals and biosecurity	A lecture	Quiz
3	2	Theoretical lecture	Biological hazards, diseases and biological risk control	A lecture	Quiz
4	2	Theoretical lecture	Methods of controlling biological risks:	A lecture	Quiz
5	2	Exam	Exam	Exam	Exam
6	2	Theoretical lecture	Hazardous and biological waste, treatment and disposal methods and decontamination process	A lecture	Quiz
7	2	Theoretical lecture	Dealing with laboratory waste, fires and their causes	A lecture	Quiz
8	2	Theoretical lecture	Biosecurity and the goal of biosecurity	A lecture	Quiz

9	2	Theoretical lecture	Biosecurity stakeholders, stakeholders at the international level	A lecture	Quiz
10	2	Exam	Exam	Exam	Exam
11	2	Theoretical lecture	Biosafety laboratory principles, safety and biosecurity	A lecture	Quiz
12	2	Theoretical lecture	Risk management methodology, development of a biosafety program	A lecture	Quiz
13	2	Theoretical lecture	Elements of a biosafety program	A lecture	Quiz
14	2	Theoretical lecture	Information security, transfer of biological materials	A lecture	Quiz
15	2	Theoretical lecture	Combating biological risks	A lecture	Quiz

11. Co2urse Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, any)	Occupational health and safety Khaled Ahmed Hazza
Main references (sources)	From methodological books, help books, the Internet, and scientific research
Recommended books and references (scientific journals, reports…)	Scientific journals in basic specializations
Electronic References, Websites	https://www.emro.who.int/ar/ihr-events/training-on-laboratory-biorisk-management.html

Course Description Form

1. Course Name:
Human rights and democracy
2. Course Code:
U014101
3. Semester / Year:
First/ 2023-2024
4. Description Preparation Date:
19/2/2024
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
15hours / 2 units
7. Course administrator's name (mention all, if more than one name)
Name. omar irheem Email: omarirheem@mu.edu.iq
8. Course Objectives

Course Objectives	• Highlighting the rights that the individual can acquire from the state, an what permeates • This is one of the obligations on it • Highlighting the concept of democracy, and the consequent application its representation • By a group of members at all levels
9. Teaching and Learning Strategies	
Strategy	cooperative education strategy Education strategy Education strategy is one accurate paper Education strategy in real time Education Strategy Series notes

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	An idea of rights Human	The concept t of huma rights	The blackboar the video, Port Po Laws, Picture	• Final Al -Amj Term Exam, Daily and Oral Examination
2	1	Humanrights statem	Human rights in ancie	=	=

		in ancient civilizations	civilizations		
3	1	Humanrights statementi the Holy Quran	Humanrights staten in the Holy Quran	=	=
4	1	Middle Ages HumanRights Statement	Middle Ages HumanRights Statement	=	=
5	1	Human Rights Statement In modern Thought	Statement of the role of organizations Non – governmental Field human rights	=	=
6	1	Human Rights Statement In the modern era At the level revolution and laws	Human rights in the era Talking at the level Revolution and laws	=	=
7	1	The statement contemporary recognition of hun rights	suThe statement contemporary recognition of hun rights	=	=
8	1	Exam	Exam	Exam	Exam
9	1	Statement of the international recognition of humar rights yet World War II	International recognition of rights Man after Wk orld War II	=	=
10	1	The role of NGOs in the field of human rights	Statement of the role of organizations Non – governmental Field human rights	=	=
11	1	Statement of the role organizations Non -governmental Field human rights	Statement of the role of organizations Non – governmental Field human rights	=	=
12	1	Historical introductic to The idea of democra	Dul Historical introduction to The idea of democrac	=	=
13	1	Concept statement Democracy	The concept of democracy	=	=

14	1	Types of Democracy	Types of democracy	=	=
15	1	Democratic differenceand hum rights	Democracand hum rights	=	=

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Human Rights Writer, d. Hamid Hanoun Khaled
Main references (sources)	Democracy and human rights, d. Abdul Majeed Al -Hakim
Recommended books and references (scientific journals, reports…)	nothing
Electronic References, Websites	There is a set of research that deals with democracy And human rights

Course Description Form

1. Course Name:
Baath system crimes
2. Course Code:
U024103
3. Semester / Year:
The first course/ for the year 2023-2024
4. Description Preparation Date:
19/2/2024
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
15 hours / 2 units
7. Course administrator's name (mention all, if more than one name)
Name: ph. omar irheem Email: : **omarirheem@mu.edu.iq**
8. Course Objectives

Course Objectives	**• Highlighting the most important resurrection crimes in Iraq, from Psychological crimes, social crimes and environmental crimes.** **• Educating students on the effects of the crimes of the system Resurrection.....**
9. Teaching and Learning Strategies	
Strategy	Cooperative learning strategy Learning strategy brainstorming Learning strategy is one accurate paper Learning strategy in real time Learning strategy notes chain

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Statement of the most important crimes committed	Introduction to syster crimes Resurrection	The blackboar the video, Port Point Laws, Pictures	Final exam,Term Exam,Daily andOral Examination

		by the Baath regime			
2	1	Definition of crimes	The concept of crimes	=	=
3	1	Explanation of the sections of crime	Crime sections	=	=
4	1	Explain the types of crimes International	Types of internationa crimes	=	=
5	1	Statement statem issued by the Supreme Criminal Court	Decisions issued by th Supreme Criminal Court	=	=
6	1	Psychological crime statement	Psychological crime statement	=	=
7	1	Statement of social crimes	Social crimes	=	=
8	1	Exam Extend			
9	1	A statement of violat of laws Iraqi	A statement of violati of laws Iraqi	=	=
10	1	Pictures of violation rights Human and power crimes	Pictures of violation eum of rights Human and power crimes	=	=
11	1	Explain the decisions violations Political and military	Violations decisions Political and military For the Baath system	=	=
12	1	Military pollution statement And radiation and an explosion Mine	Military pollution statement And radiation and an explosion Mine	=	=
13	1	Statement of the destruction of cities and villages (Earth policy Burned)	Statement of the destruction of cities and villages (Earth policy Burned)	=	=
14	1	Justice bulldozing statemen And the marshes and trees	Grading orchards And the marshes and trees	=	=
15	1	Explanation of the events of the genocide The collective committed from The Baathist regime in Iraq	The events of the grav of extermination The collective committed from The Baathist regime in Iraq	=	=

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	The Book of the Crime of the Baath System
Main references (sources)	Ayman Abdel Aziz Salama, the state's responsibility for committing genocide
Recommended books and references (scientific journals, reports…)	Dr.. Ali Hanoush, the problems of the present and the future options, a study in environmental pollution.
Electronic References, Websites	There are many electronic sources on a network The Internet, on the subject of crimes in general And Baath crimes in particular

Course Description Form

1. Course Name:
Arabic Language
2. Course Code:
U024102
3. Semester / Year:
The first stage/spring semester
4. Description Preparation Date:
26/2/2024
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours Number of units: 2
7. Course administrator's name (mention all, if more than one name)
Name: Ass. Lecturer Amer Mousa Kadhum Email: amermousak@mu.edu.iq
8. Course Objectives

Course Objectives	• **Teaching the student grammar and parsing, as well as rhetoric in the Holy Quran.**

9. Teaching and Learning Strategies	
Strategy	1 Explanation and clarification 2 Lecture method 3Student groups 4Practical lessons in laboratories

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Theoretical lecture	Rhetoric in the Holy Quran	A lecture	Quiz
2	2	Theoretical lecture	Interpretation of twenty verses	A lecture	Quiz
3	2	Theoretical lecture	Arabic / Grammar and parsing	A lecture	Quiz
4	2	Theoretical lecture	The subject and the predicate	A lecture	Quiz
5	2	Exam	Exam	Exam	Exam
6	2	Theoretical lecture	Copiers	A lecture	Quiz
7	2	Theoretical	Imperfect verbs	A lecture	Quiz

		lecture			
8	2	Theoretical lecture	Effects	A lecture	Quiz
9	2	Theoretical lecture	preparation	A lecture	Quiz
10	2	Exam	Exam	Exam	Exam
11	2	Theoretical lecture	Hamza and dictates	A lecture	Quiz
12	2	Theoretical lecture	Rules for writing ta'	A lecture	Quiz
13	2	Theoretical lecture	Ages of Arabic literature	A lecture	Quiz
14	2	Theoretical lecture	Old poetry	A lecture	Quiz
15	2	Theoretical lecture	Writing common mistakes	A lecture	Quiz

11. Co2urse Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books any)	Arabic language Rafid Sabbah
Main references (sources)	From methodological books, help books, the Internet, and scientific research
Recommended books and references (scientific journals, reports…)	Scientific journals in basic specializations
Electronic References, Websites	https://www.wuduh1.com/2023/10/books-arabic.html

Course Description Form

1. Course Name:
Zoology
2. Course Code:
0014102
3. Semester / Year:
The first stage/spring semester
4. Description Preparation Date:
26/2/2024
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
75 hours. Number of units: 3
7. Course administrator's name (mention all, if more than one name)
Name: Abbas shanshool Abd-alnabi Email: Abbas.shanshol@mu.edu.iq
8. Course Objectives

Course Objectives	• **Teaching the student about zoology and its relationship to other sciences.**

9. Teaching and Learning Strategies	
Strategy	1 Explanation and clarification 2 Lecture method 3Student groups 4Practical lessons in laboratories

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Theoretical lecture	Zoology and its relationship to other sciences	A lecture	Quiz
2	2	Theoretical lecture	The importance of studying zoology	A lecture	Quiz
3	2	Theoretical lecture	Animal cell, its features and components	A lecture	Quiz
4	2	Theoretical lecture	Cellular division	A lecture	Quiz
5	2	Exam	Exam	Exam	Exam
6	2	Theoretical lecture	Protoplasm and its chemical and physical properties	A lecture	Quiz
7	2	Theoretical	Classification and scientific	A lecture	Quiz

		lecture	nomenclature		
8	2	Theoretical lecture	Digestion, assimilation and absorption	A lecture	Quiz
9	2	Theoretical lecture	Elementary Division	A lecture	Quiz
10	2	Exam	Exam	Exam	Exam
11	2	Theoretical lecture	Intestinal coelom division	A lecture	Quiz
12	2	Theoretical lecture	Porosity Division	A lecture	Quiz
13	2	Theoretical lecture	Division of flatworms	A lecture	Quiz
14	2	Theoretical lecture	Phylum Bagworms	A lecture	Quiz
15	2	Theoretical lecture	Division of annelids	A lecture	Quiz

11. Co2urse Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books any)	Zoology George Haddad
Main references (sources)	From methodological books, help books, the Internet, and scientific research
Recommended books and references (scientific journals, reports…)	Scientific journals in basic specializations
Electronic References, Websites	https://angelo.libguides.com/biology/zoology/websites

Course Description Form

1. Course Name: organic chemistry

2. Course Code:

0C24103

3. Semester / Year: First

4. Description Preparation Date: 2023-2024

5. Available Attendance Forms: In person + electronic

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

Number of Credit Hours (Total) 75 hours

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

Name: Prof. Dr.Mohammed Radwan Mohmoud
Email: modrn@mu.edu.iq

8. Course Objectives

Course Objectives	1- Providing students with general information about analytical chemistry 2- Introducing students to ways to express concentrations and their types 3- Introducing students to strong and weak acids and bases 4- Explaining to students what Buffer's solutions are and their types, with examples 5- Introducing students to the definition of salts and their types, with theoretical examples

9. Teaching and Learning Strategies

Strategy	**Strategic teaching and learning methods** **Audio methods (teaching explanation of the topic)** **Style of writing on the blackboard** **The method of direct dialogue between the teacher and the student, with the stude evaluation in class participation** **Conduct experiments.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first week	2Theoretical 3 Practical		1 Introduction to organic chemistry and its importance, chemical bonds, bases and acids. Experiment No. 1. Preparation of alkylcyclo		Exams , reports, discussions Quizzes
second week	2Theoretical 3 Practical		2 Effective groups, saturated hydrocarbons, introduction, general law, nomenclature according to the IupAc system, physical properties. Their reactions Experiment No. 2 Preparation of alkyl halide		Exams , reports, discussions
the third week	2Theoretical 3 Practical		3 Unsaturated hydrocarbons (alkenes, introduction, general law, nomenclature		Exams , reports,

			according to the IupAc system, physical properties. Their reactions Experiment No. 3 Preparation of alcohols		discussions
fourth week	2Theoretical 3 Practical		4 Unsaturated hydrocarbons, alkynes, introduction, general law, nomenclature according to the IupAc system, physical properties. Their reactions Experiment No. 4 Preparation of acetone		Exams , reports, discussions
The fifth week	2Theoretical 3 Practical		5 First month exam, Experiment No. 5, studying the properties of acetone		Exams , reports, discussions
the sixth week	2Theoretical 3 Practical		6 Alcohols, introduction, general law, nomenclature according to the IupAc system, physical properties. Their interactions Experiment No. 6 Study of the properties of aldehydes		Exams , reports, discussions
Seventh week	2Theoretical 3 Practical		7 Ethers, introduction, general law, nomenclature according to the IupAc system, physical properties. Their interactions Experiment No. 7 Study of the properties of ketones		Exams , reports, discussions
The eighth week	2Theoretical 3 Practical		8 Aldehydes, introduction, nomenclature according to the IupAc system, physical properties. Their reactions Experiment No. 8 Preparation of carboxylic acid		
Week nine	2Theoretical 3 Practical		9 Ketones, introduction, nomenclature according to the IupAc system, physical properties. Their interactions Experiment No. 9 Preparing aspirin		Exams , reports, discussions
The tenth week	2Theoretical 3 Practical		10 Distinguishing between aldehydes and ketones Experiment No. 10 Detecting carbon		Exams , reports, discussions
Week eleven	2Theoretical 3 Practical		11 Carboxylic acids and their derivatives, their interactions, Experiment No. 11, Classification of oils and fats		Exams , reports, discussions
The twelfth week	2Theoretical 3 Practical		12 Second month exam Experiment No. 12 Calculating oils and fats		Exams , reports, discussions
The thirteenth week	2Theoretical 3 Practical		13 Al-Muhaddith: Knowing the importance of organic fertilizers and preparing organic plant fertilizers		Exams , reports, discussions
The fourteenth week	2Theoretical 3 Practical		14 Updated: Linking organic materials to improving crop productivity. Preparing organic animal fertilizers		Exams , reports, discussions
The fifteenth week			15 Al-Muhaddith Decomposition of organic matter Decomposition of plant and animal organic fertilizers		

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Pasto,D.; Johnson,C. and Miller, M. (1992). Experments and Techniques in Orgnic Chemistry; Prentice Hall, Englewood Clifts, New Jersey 07632, USA
Main references (sources)	From methodological books, help books, the Internet, scientific research
Recommended books and references (scientific journals, reports…)	Iraqi Scientific journals in basic specializations

Electronic References, Websites	Al-Muthanna University e-learning website https://agr.mu.edu.iq/

Course Description Form

1. Course Name:

Computer fundamentals 1

2. Course Code:

U014102

3. Semester / Year:

First / **First** Semester

4. Description Preparation Date:

29\2\2024

5. Available Attendance Forms:

Actual presence

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

30 Hours Number of Units 2

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

Name: Dr. Karrar Hameed Abdulkareem
Email: khak9784@mu.edu.iq

8. Course Objectives

Course Objecti	• The student gets to know computer fundamentals in details. • The student should know advantages of using computer device and main parts of this dev in real life. • The student should apply many commends and processes on windows 7.

9. Teaching and Learning Strategies

Strategy	1-Explanation and clarification. 2- Practical lessons. 3- Self-learning method.

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	Unit or subject name	Learning method	Evaluation method
First	2	Introduction to Computer Fundamentals and computer generations	Computer Fundamentals	Explanation, presentation of model and lecture	the exam
second	2	Abilities and uses of computer device	Computer Fundamentals	Explanation, presentation of model and lecture	the exam
third	2	Computer parts	Computer Fundamentals	Explanation, presentation of model and lecture	the exam
fourth	2	Computer parts	Computer Fundamentals	Explanation, presentation of model and lecture	the exam
Fifth	2	Computer parts	Computer Fundamentals	Explanation, presentation of model and lecture	the exam

Sixth	2	Practical Example	Computer Fundamentals	Practical session	the exam
Seventh	2	Practical Example	Computer Fundamentals	Practical session	the exam
Eighth	2	Introduction to windows 7	Computer Fundamentals	Explanation, presentation of model and lecture	the exam
Ninth	2	User interface and relative processes	Computer Fundamentals	Explanation, presentation of model and lecture	the exam
Tenth	2	Computer components (partitions, folders, and files)	Computer Fundamentals	Practical session	the exam
Eleventh	2	Practical Example	Computer Fundamentals	Practical session	the exam
Twelfth	2	Start menu and taskbar	Computer Fundamentals	Explanation, presentation of model and lecture	the exam
Thirteenth	2	Control panel	Computer Fundamentals	Explanation, presentation of model and lecture	the exam
fourteenth	2	Practical Example	Computer Fundamentals	Practical session	the exam
Fifteenth	2	Practical Example	Computer Fundamentals	Practical session	the exam

11. Course Evaluation

1-Theoretical tests 25
2- Practical tests 15
3- Reports and studies 10
4- Final exam 50

12. Learning and Teaching Resources

Required textbooks (curric books, if any)	
Main references (sources)	1- Basic Computer course book(Free University of Bolzano Bozen – Dr. Paolo Coletti - Edition 8.0 (1 March 2016)).
Recommended books and references (scientific journals, reports…)	
Electronic References, Website	

Course Description Form

1. Course Name:
General plant basics
2. Course Code:
0024101
3. Semester / Year:
2024
4. Description Preparation Date:
01/09/2024
5. Available Attendance Forms:
Attend
6. Number of Credit Hours (Total) / Number of Units (Total)
75 Hours Number of Units 3
7. Course administrator's name (mention all, if more than one name)
Name: Hazim Sultan Safana Email:Hazim-agr-70@mu.edu.iq
8. Course Objectives

Course Objectives	• Researches general botany on the principles adopted in plant styling and the applie fields of botany and the relationships between plants • It includes knowledge of the different plant organs through which the general plant be developed • Knowing the vegetative and reproductive characteristics and their importance in general plants • Methods used in general plants • Study the evolutionary importance of reproductive organs • Study of monocotyledonous and dicotyledonous plants
9. Teaching and Learning Strategies	
Strategies	Ask students inferential questions Establishing training programs Finding solutions to the problems and obstacles that students encounter in th practical part Enabling students to find solutions and applications for crisis situations

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the first	5	Required educational outcomes	Explanations, presentation of the model and lecture	Attend	a daily test
the second	5	A historical overview botany, its study, and importance of plants humans	Explanations, presentation of the model and lecture	Attend	a daily test
the third	5	Departments of botany	Explanations,		

		plant characteristics - type plants	presentation of model and lecture	Attend	a daily test
the fourth	5	Inorganic chem compounds in plants and t types	Explanations, presentation of model and lecture	Attend	a daily test
Fifth	5	Organic chem compounds in plants and t types	Explanations, presentation of model and lecture	Attend	a daily t
VI	5	Organic compounds plants and their types	Explanations, presentation of the model and lecture	Attend	a daily test
Seventh	5	Plant physiology, photosynthesis, respiration transpiration, absorption	Explanations, presentation of the model and lecture	Attend	a daily test
VIII	5	Plant anatomy, cell, tissue, plant organs	Explanations, presentation of the model and lecture	Attend	a daily test
Ninth	5	Plant classification metho plant composition, plant ag use of plant families, and method of cultivation	Explanations, presentation of the model and lecture	Attend	a daily test
The tenth	5	Factors affecting plant growth, gases, nutrients, growth regulators	Explanations, presentation of the model and lecture	Attend	a daily test
Eleventh	5	Plant aggregates, bacteria echinoderms, fungi	Explanations, presentation of the model and lecture	Attend	a daily t
Twelveth	5	Plant groups: mono gymnosperms	Explanations, presentation of model and lecture	Attend	a daily test
Thirteenth	5	Plant aggregates covered with seeds	Explanations, presentation of the model and lecture	Attend	a daily test
fourteenth	5	Genetics in plants	Explanations, presentation of the model and lecture	Attend	a daily test
Fifteenth	5	Genetics in plants	Explanations, presentation of the model and lecture	Attend	a daily test

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Basics of general plants, Muhammad Abdel Wahab A Naghi, Wafaa Mahrous, Amer, Adel Ahmed Fathi
Main references (sources)	Recent articles from the Internet and from specialized scientific journals, the Iraqi Agricultural Sciences Journal, and the virtual library
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic References, Websites	General plant

Course Description Form

1. Course Name:
Basics of gardening and landscaping
2. Course Code:
0c14101
3. Semester / Year:
First / First Semester
4. Description Preparation Date:
01/09/2024
5. Available Attendance Forms:
Attend
6. Number of Credit Hours (Total) / Number of Units (Total)
75 Hours Number of Units 3
7. Course administrator's name (mention all, if more than one name)
Name: Hazim.S.Safana Email:Hazim-agr-70@mu.edu.iq
8. Course Objectives

Course Objectives	• **Introducing the student to the various horticultural crops, their econor nutritional, medical and aesthetic importance, methods of cultivation production, and identifying various horticultural facilities and methods establishing orchards.** • **Knowledge of horticulture departments** • **Know the difference between horticultural crops and field crops** • **Identify the factors affecting the success of growing horticultural crops** • **Identify the factors determining the establishment of orchards** ▪ **Learn how to create public and private parks and plant tre in cities and central islands**

9. Teaching and Learning Strategies

Strategies	Introducing the student to the various horticultural crops, their econor nutritional, medical and aesthetic importance, methods of cultivation production, and identifying various horticultural facilities and methods establishing orchards.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the first	5	Learn about horticulture, the history of the development of horticulture, its economic and nutritional importance	horticulture, the history of the development of horticulture, its economic and nutritional importance	Attend	a daily test
the second	5	Learn how to div horticultural plants	divide horticultural pla	Attend	a daily test
the third	5	Identify environme	environmental factors		

		factors and their imp on the production horticultural crops	their impact on production horticultural crops	Attend	a daily test
the fourth	5	Identify the methods reproduction horticultural pla (sexual, asexual)	the methods reproduction horticultural pla (sexual, asexual)	Attend	a daily test
Fifth	5	Identifying nurseries field farming patterns	nurseries and f farming patterns	Attend	a daily te
VI	5	Learn about agricult and horticult processes	agricultural and horticultural processes	Attend	a daily test
Seventh	5	Learn about agriculture under air-conditioned environments	agriculture under air-conditioned environme	Attend	a daily test
VIII	5	Getting to know the ge marketing	the genie, marketing	Attend	a daily test
Ninth	5	Learn about care and storage	care and storage	Attend	a daily test
The tenth	5	Learn about breeding a improving horticultura plants	breeding and improvin horticultural plants	Attend	a daily test
Eleventh	5	Learn about garden architecture and desig	garden architecture an design	Attend	a daily te
Twelveth	5	Learn about ways exploit spaces and roof buildings by grow horticultural plants	a ways to exploit spa and roofs of buildings growing horticult plants	Attend	a daily test
Thirteenth	5	Identify windbreaks an their role in reducing desertification conditio	windbreaks and their r in reducing desertificat conditions	Attend	a daily test
Fourteenth	5	Learn how to use mod mechanization to se horticultural plants	how to use modern mechanization to serve horticultural plants	Attend	a daily test
Fifteenth	5	Identifying (medicinal a aromatic plants, fruit trees, vegetable plants, ornamental plants)	(medicinal and aromat plants, fruit trees, vegetable plants, ornamental plants)	Attend	a daily test

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Horticulture Dr. Jabbar Ihsan Saloumi, Mr. Hossam Hussein Ali Ghalib
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
English language
2. Course Code:
U014104
3. Semester / Year:
The first stage/ first semester
4. Description Preparation Date:
26/2/2024
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours. Number of units: 2
7. Course administrator's name (mention all, if more than one name)
Name: Lafta Awad Atshan Email: lafta.awad@mu.edu.iq
8. Course Objectives

Course Objectives	• **Teaching the student the basics of the English language**

9. Teaching and Learning Strategies	
Strategy	1 Explanation and clarification 2 Lecture method 3Student groups 4Practical lessons in laboratories

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Theoretical lecture	Basics of the English language	A lecture	Quiz
2	2	Theoretical lecture	Pronouns	A lecture	Quiz
3	2	Theoretical lecture	Pronouns	A lecture	Quiz
4	2	Theoretical lecture	auxiliary verbs	A lecture	Quiz
5	2	Exam	Exam	Exam	Exam
6	2	Theoretical lecture	Verb rules	A lecture	Quiz
7	2	Theoretical lecture	Verb rules	A lecture	Quiz
8	2	Theoretical	Noun rules	A lecture	Quiz

		lecture			
9	2	Theoretical lecture	Noun rules	A lecture	Quiz
10	2	Exam	Exam	Exam	Exam
11	2	Theoretical lecture	Adjective rules	A lecture	Quiz
12	2	Theoretical lecture	Adjective rules	A lecture	Quiz
13	2	Theoretical lecture	auxiliary verbs	A lecture	Quiz
14	2	Theoretical lecture	auxiliary verbs	A lecture	Quiz
15	2	Theoretical lecture	auxiliary verbs	A lecture	Quiz

11. Co2urse Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricu books, if any)	Writing Academic English, Level 1 by Alice Oshima
Main references (sources)	From methodological books, help books, the Internet, and scientific research
Recommended books and references (scientific journals, reports…)	Scientific journals in basic specializations
Electronic References, Websites	https://www.ef.com/wwar/blog/language/dystopian-books-to-learn-english/

Course Description Form

1. Course Name:

Computer fundamentals 2

2. Course Code:

U024101

3. Semester / Year:

Second

4. Description Preparation Date:

3\7\2024

5. Available Attendance Forms:

Actual presence

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

30 Hours Number of Units 3

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

Name: Dr. Karrar Hameed Abdulkareem
Email: khak9784@mu.edu.iq

8. Course Objectives

Course Objectives	• The student gets to know Microsoft access in details. • The student should know advantages of using Microsoft access in real life. • The student should apply many commends and processes on Microsoft access.

9. Teaching and Learning Strategies

Strategy	1-Explanation and clarification. 2- Practical lessons. 3- Self-learning method.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	Introduction to Microsoft access	Microsoft access	Explanation, presentation of model and lecture	Exam
second	2	Access main interface	Microsoft access	Explanation, presentation of model and lecture	Exam
third	2	Tabs and groups	Microsoft access	Explanation, presentation of model and lecture	Exam
fourth	2	Tabs and groups	Microsoft access	Explanation, presentation of model and lecture	Exam
Fifth	2	Tabs and groups	Microsoft access	Explanation, presentation of model and lecture	Exam
Sixth	2	Practical Example	Microsoft access	Practical session	Exam
Seventh	2	Practical Example	Microsoft	Practical session	Exam

			access		
Eighth	2	Tables	Microsoft access	Explanation, presentation of model and lecture	Exam
Ninth	2	Practical Example	Microsoft	Practical Example	Exam
Tenth	2	Queries	Microsoft access	Explanation, presentation of model and lecture	Exam
Eleventh	2	Practical Example	Microsoft access	Practical session	Exam
Twelfth	2	Reports	Microsoft access	Explanation, presentation of model and lecture	Exam
Thirteenth	2	Control panel	Microsoft access	Explanation, presentation of model and lecture	Exam
fourteenth	2	Practical Example	Microsoft access	Practical session	Exam
Fifteenth	2	Practical Example	Microsoft access	Practical session	Exam

11. Course Evaluation

1-Theoretical tests 25
2- Practical tests 15
3- Reports and studies 10
4- Final exam 50

12. Learning and Teaching Resources

Required textbooks (curric books, if any)	
Main references (sources)	1- Microsoft Access 2010 book(UNIVERSITY OF VIRGINIA HEALTH SYSTEM). 2- Lectures of Microsoft Access 2010 prepared by Eng.M.Abou Elale.
Recommended books and references (scientific journals, reports…)	
Electronic References, Website	**https://support.microsoft.com/ar-sa/office/%D8%A7%D9%84%D9%85%D9%87%D8%A7%D9%85-%D8%A7%D9%84%D8%A3%D8%B3%D8%A7%D8%B3%D9%8A%D8%A9-%D9%81%D9%8A-access-2010-268acfed-2484-4822-acb3-c30e58045588**

Course Description Form

1. Course Name:
Statistics
2. Course Code:
0C14203
3. Semester / Year:
Spring Semester / secondary
4. Description Preparation Date:
12 / 2 / 2024
5. Available Attendance Forms:
In a present way
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: sadeq Hadi Hussein Email: Sadeq.hadi@mu.edu.iq
8. Course Objectives

Course Objectives	The skills objectives of the course. 1- Graduation research. 2- Scientific reports 6- Linking information to engineering reality

9. Teaching and Learning Strategies	
Strategy	1. Mathematical exercises and problems. Assigning the student to some group activities and duties. 2. Allocate a percentage of the grade to daily assignments and tests. 3. Information on the Internet. 4 Practical experiences in research stations affiliated with the College of Agriculture.

10. Course Structure

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

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Memorize, understand, analyze, apply Memorize,understand, analyze, apply Memorize, understand, analyze, apply Memorize,understand, analyze, apply Memorize, understand, analyze, apply Memorize,understand, analyze, apply Memorize, understand, analyze, apply Memorize,understand, analyze, apply Memorize, understand, analyze, apply Memorize,understand, analyze, apply Memorize, understand, analyze, apply Memorize,understand, analyze, apply Memorize, understand, analyze, apply Memorize,understand, analyze, apply	1- A historical overview, definition, importance and applications of statistics 2- Introducing statistical terminology and methods for obtaining random samples 3- Tabular and graphical presentation 4- Concentration metrics 5- How to make a frequency distribution table 6- Measures of relative dispersion 7- The relationship between the arithmetic mean, median, and mode 8- T-test and F-test 9- Simple regression 10- Correlation 11- Probability distributions 12- Normal distribution 13- Analysis of variance	Presence presence presence presence presence presence presence presence presence presence presence presence presence presence presence	Daily tests Daily tests Daily tests Daily tests Daily tests Daily tests Daily tests Daily tests Daily tests Daily tests Daily tests Daily tests Daily tests Daily tests Daily tests

11. Course Evaluation

Attendance 5 + daily exams and assignments 2 + reports 3 + practical exam 15 + monthly exam 25 = 50 pursuit, final exam 20 practical + 30 theoretical .

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Introduction to Statistics - Khashi Muhammad Al-Rawi
Main references (sources)	Principles of Statistics - Ahmed Abdel Samie 2008
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Medical and veterinary entomology	
2. Course Code:	
0014201	
3. Semester / Year:	
First semester/second year	
4. Description Preparation Date:	
14/2/2024	
5. Available Attendance Forms:	
present way	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours / 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: MOHAMD KHALEL IBRAHIM MOHAMED Email: moh_kh15@mu.edu.iq	
8. Course Objectives	
Course Objectives	• **The student will acquire cognitive skills about the concepts of the relationship insects to human and animal health, an introduction to the science of medica entomology, methods of transmitting pathogens, the medical importance of th orders of cockroaches, lice, dipteras, spiders, bedbugs and fleas and methods combating them, toxic pests and their relationship to environmental health. .** • **Also know the classification of medicinal insects according to their importance humans and animals and according to the type of host on which they feed** • • **Knowing the Arabic name of medical insect pests, scientific name, family, ord economic importance, and life cycle** • • **In addition to studying all insects that infect humans and animals** • • **Identify the harmful phase and symptoms and signs of infection**
9. Teaching and Learning Strategies	
Strategy	Strategy A - Cognitive objectives A1- Learn about the concept of medical insects and methods diagnosing them A2- Learn about ways to combat these insects and methods preventing them A3- Learn about the concept of medical entomology and controlling the danger of these insects to public health A4- Learn about the nature of the damage and losses caused medical insects in the general environment and what these insects cause to public health

	A5- Identify the reasons for the infestation of humans and animals with these insects A6-Describe the life cycle of insects that infect humans and animals and identify the harmful phase B - The program's skill objectives B1 - Knowing the concept of medical insects, especially insec in hot environments B2 - Enabling students to diagnose infections and the possibility of isolating and diagnosing disease-causing insec B3 - The student's ability to estimate the extent that leads t harm to humans and animals

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and applying**	**identification of medical insects and a historical overview of the development of medical insects and the stages they went through. theoretical Introduction to medical and veterinary insects.**	**Practical lecture, discussion,**	oral examinations
second	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and applying**	**the medical importance of insects, methods of transporting them, and their medical harm. theoretical Mouth parts in medical and veterinary insects (1).**	**Practical lecture and discussion**	oral examinations
Third	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and applying**	**epidemiology and i relationship to medi insects. Theoretica Mouth parts in medical and veterinary insects (2).**	**Practical lecture, discussion,**	oral examinations
Fourth	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and applying**	**the Hemipteran order, the Diptera order (division of the order). Cockroaches, types of lice. sand flies and black flies (their types and harms).**	**Practical lecture and discussion**	oral examinations
Fifth	**2theoretical +2 practical**	**memorizing, understanding,**	**Diagnosing the most important**	**Practical lecture, discussion,**	oral examinations

		analyzing, and applying	**phenotypic characteristics by which bedbugs, sandflies, and blackflies are distinguished.**		
Sixth	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and applying**	**theoretical test 1. Practical test 1.**	**examination**	**writing examinations**
Seventh	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and applying**	**Types Mosquitoes of mosquitoes with an attempt to collect mosquitoes from the field and raise them**	**Practical lecture, discussion,**	oral examinations
Eighth	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and applying**	**the apprehension fly, horse fly, house fly, stable fly Trying to differentiate between a stable fly and a house fly.**	**Practical lecture and discussion**	oral examinations
Ninth	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and applying**	**colored flies, myiasis, and codification. Study of external characteristics to differentiate between colored flies and myiasis**	**Practical lecture, discussion,**	oral examinations
Tenth	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and applying**	**fleas, fleas.Flea cheats and fleas with learning how to collect fleas.**	**Practical lecture and discussion**	oral examinations
Eleventh	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and applying**	**some small orders with their medical and veterinary importance such as Lepidoptera, Coleoptera, and Hymenoptera. Making slides for parts of some types of medical insects.**	**Practical lecture, discussion,**	oral examinations
Twelfth	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and applying**	**the sect and arachnids, scorpions, spiders, and dreams. Identifying the types of spiders and their modern types that cause medical and veterinary diseases, especially hard and soft ticks and mites.**	**Practical lecture and discussion**	oral examinations
Thirteenth	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and**	**the life cycle of some pathogens transmitted by**	**Practical lecture, discussion,**	oral examinations

		applying	**arthropods, leishmaniasis, malaria, and elephantiasis. Learn how to breed mosquitoes and flies.**		
Fourteenth	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and applying**	**, the second part of the lecture on the life cycle of pathogens. Survey and diagnosis of medical insects present in the area.**	**Practical lecture and discussion**	oral examinations
Fifteenth	**2theoretical +2 practical**	**memorizing, understanding, analyzing, and applying**	**theoretical test2. Practical test 2.**	**examination**	**writing examinations**

11. Course Evaluation

Attendance 5 + Daily exams and assignments 2 + Reports 3 + Practical exam 15 + Monthly exam 25 = 50 quest , The final exam is 20 practical + 30 theoretical

12. Learning and Teaching Resources

Required textbooks (curricular books any)	Abo-Al Hab. , Jalil.1980. Book of medical and veterina insects, theoretical and practical part
Main references (sources)	1- Al-Tayeb Ali Al-Hajj (Medical and Veterinary Insects) 2- the guide to medical entomology, Dr. Ali Salit et a
Recommended books and references (scientific journals, reports…)	1- Arthropods of medical and veterinary importance in the Kingdom of Saudi Arabia Dr. Ali Ibrahim Badawi 2- Disease-carrying insects, written by Jalil Abu Al-Hab
Electronic References, Websites	The free scientific encyclopedia www.emedicine.com/ped/topic/1292.htm www.ext.colostate.edu/pubs/insect/05502.html www.kennedypest.com/roach2.html www.medicine.cmu.ac.th/dept/parasite

Course Description Form

1. Course Name: Agricultural machinery and equipment
2. Course Code:
0014204
3. Semester / Year: 2023-2024
4. Description Preparation Date:12-4-2024
5. Available Attendance Forms: present way
6. Number of Credit Hours (60) / Number of Units (3)
7. Course administrator's name (mention all, if more than one name)
Name: JAWAD KADHIM AL ARIDHEE Email: jawadaridhee@mu.edu.iq
8. Course Objectives

Course Objectives	• Identify the types and parts of pullers • Types of combustion engines and methods mechanical transmission • Types of methods of operating and connecting equipment and how to maintain and maintain it
9. Teaching and Learning Strategies	
Strategy	• Explaining the importance of using mechanization in providing and achieving high levels of production • Explaining the modern and advanced method of agriculture through agricultural machinery

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	memorizing, understanding, analyzing, and applying	Classification of tractors , Mechanical transmission methods	Theoretical + practical lecture	test
2	4	memorizing, understanding, analyzing, and applying	Internal combustion engine parts	Theoretical + practical lecture	test

3	4	memorizing, understanding, analyzing, and applying	Four – stroke cycle& Two – stroke cycle	Theoretical + practical lecture	test
4	4	memorizing, understanding, analyzing, and applying	Timer devices	Theoretical + practical lecture	test
5	4	memorizing, understanding, analyzing, and applying	Clutch Device	Theoretical + practical lecture	test
6	4	memorizing, understanding, analyzing, and applying	Gearbox and Transmission devices	Theoretical + practical lecture	test
7	4	memorizing, understanding, analyzing, and applying	Fuel System	Theoretical + practical lecture	test
8	4	memorizing, understanding, analyzing, and applying	Cooling System	Theoretical + practical lecture	test
9	4	memorizing, understanding, analyzing, and applying	Lubrication System	Theoretical + practical lecture	test
10	4	memorizing, understanding, analyzing, and applying	Hydraulic devices. Power take - off shaft	Theoretical + practical lecture	test
11	4	memorizing, understanding, analyzing, and applying	Soil preparation equipment	Theoretical + practical lecture	test
12	4	memorizing, understanding, analyzing, and applying	Control equipment - Spraying equipment	Theoretical + practical lecture	test
13	4	memorizing, understanding, analyzing, and applying	Fogging equipment	Theoretical + practical lecture	test
14	4	memorizing, understanding, analyzing, and applying	Sprinkler calibration	Theoretical + practical lecture	test
15	4	memorizing, understanding, analyzing, and applying	Maintenance of control equipment	Theoretical + practical lecture	test

11. Course Evaluation

Attendance 5 + Daily exams and assignments 2 + Reports 3 + Practical exam 15 + Monthly exam 25 = 50 quest , The final exam is 20 practical + 30 theoretical

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Agricultural machinery
Main references (sources)	• Field crop mechanization equipment. Written by Lotfi Hussein and Dr. Abdel Salam Mahmoud • For pullers and protective equipment. Written

	by Lotfi Hussein Basic Farm Machinery .J.M.shippen,C.R.Ellin and C.H.Clover
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Plant physiology
2. Course Code:
0014202
3. Semester / Year:
the first Semester / second year
4. Description Preparation Date:
20 / 2 / 2024
5. Available Attendance Forms:
Present way
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: mahmood thamer abed Email: Mohmoodth999@mu.edu.iq
8. Course Objectives

Course Objectives	**-Learn about plant physiology** **-Knowledge of the principles of this plant science** **- The importance of plant physiology**

9. Teaching and Learning Strategies	
Strategy	1 - Presentation of PowerPoint via the Data show screen 2-Electronic presentation via communication platforms 3 - Direct delivery method and detailed explanation

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorization, understand practical application	A historical overview of t emergence and developm of physiological science	Lecture and discus	Oral exams
2	4	Memorization, understand practical application	Water relations	Lecture and discus	Quick exam
3	4	Memorization, understand practical application	Plant Cell	Lecture and discus	Oral exams
4	4	Memorization, understand practical application	Anatomy of phloem tissu	Lecture and discus	
5	4	Memorization, understand practical application	Photosynthesis	Written exam	Oral exams

6	4	Memorization, understand practical application	Breathing	Lecture and discus	Quick exam
7	4	Memorization, understand practical application	Growth and development plants	Lecture and discus	Oral exams
8	4	Memorization, understand practical application	Enzymes	Lecture and discus	Quick exam
9	4	Memorization, understand practical application	Nutrients and plant nutriti	Lecture and discus	Oral exams
10	4	Memorization, understand practical application	Transport	Lecture and discus	Oral exams
11	4	Memorization, understand practical application	Root growth	Lecture and discus	Oral exams
12	4	Memorization, understand practical application	For plant hormones	Lecture and discus	Oral exams
13	4	Memorization, understand practical application	Flowering	Written exam	Oral exams

11. Course Evaluation

Attendance 5 + Daily exams and assignments 2 + Reports 3 + Practical exam 15 + Monthly exam 25 = 50 quest , The final exam is 20 practical + 30 theoretical

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	. Crop physiology / Dr. Abdul Hameed
Main references (sources)	1. Plant Physiology / Dr. Medhat
Recommended books and references (scientific journals, reports…)	- Iraqi Agriculture Journal
Electronic References, Websites	All agricultural and plant disease magazine sites

Course Description Form

1. Course Name:
Insect taxonomy
2. Course Code:
0024201
3. Semester / Year:
2 \ 2
4. Description Preparation Date:
27\ 2\ 2024
5. Available Attendance Forms:
: present way
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours/3 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Khalid Jaber AbdelRazzaq Email: khadry.ahmed@mu.edu.iq
8. Course Objectives

Course Objectives	**1-The student gets to know the most important insect order** **2-The student learns about the position of insects within the taxonomic ranks** **3- The student knows the types of taxonomic keys used to differentiate between insect types** **4-The student learns about the types of specimens preserved museums**

9. Teaching and Learning Strategies	
Strategy	**1-Sudden daily and continuous weekly tests** **2-Exercises and activities in the classroom** **3- Directing students to some websites**

10. Course Structure

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

1	4	Memorize,understand. analysis	Taxonomy, its definiti history, relationship other sciences, and stages of its development.	Lecture and discussion	Written tests
2	4	Memorize,understan analysis	Modern taxonomy a its comparison wit ancient taxonomy, taxonomic ranks, a the formation of lif types with example	Lecture an discussio	Written tests
3	4	Memorize,understanc analysis	Division of insects, taxonomic stratificati The class system wi examples.	Lecture and discussion	Written test
4	4	Memorize,understand analysis	Introduction to the origin of the arthrop phylum (a historica overview), theories formation and evoluti a table of the geologi history of the Earth	Lecture and discussion	Written test
5	4	Memorize,understanc analysis	Describe insects, its division and sub-orde with examples.	Lecture and discussion	Written test
6	4	Memorize,understanc analysis	Types of museum collections, styles (ty of models) with examples	Lecture and discussion	Written test
7	4	Memorize,understanc analysis	Individual variation their types, and the reason for their appearance, with examples.	Lecture and discussion	Written test
8	4	Memorize,understanc analysis	Scientific nomenclatu its terms, writing th scientific name, taxonomic keys, wit examples	Lecture and discussion	Written test
9	4	Memorize,understanc analysis	Diagnosis of typologi and taxonomic differentiation with examples	Lecture and discussion	Written test
10	4	Memorize,understanc analysis	Taxonomic characteristics and geographical distribution of livin organisms according geographical region with examples.	Lecture and discussion	Written test
1	4	Memorize,understanc analysis	Taxonomic keys to insect orders	Lecture and discussion	Written test
11. Course Evaluation					

Attendance 5 + Daily exams and assignments 2 + Reports 3 + Practical exam 15 + Monthly exam 25 = 50 quest , The final exam is 20 practical + 30 theoretical	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Structure and classification of insects\D: Jalil Abu Al-Hab
Main references (sources)	Classification of insects\D. Mohammad Radwan
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
English
2. Course Code:
U024201
3. Semester / Year: Semester
1 \ 2
4. Description Preparation Date:
27 \ 2 \ 2024
5. Available Attendance Forms:
Present way
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours \ 2 Units
7. Course administrator's name (mention all, if more than one name)
Name: Lafta Awad Atshan Email: lafta.awad@mu.edu.iq
8. Course Objectives

Course Objectives	**Teaching students English language skills** **• Trying to employ the English language to serve t school curriculum** **•Teaching students skills that help them pass international language tests** **•Motivating students to research foreign sources**
9. Teaching and Learning Strategies	
Strategy	Students are taught English language skills such as listening, reading writing, and grammar through available learning methods such as projectors in classrooms, homework, direct discussion methods, quic tests, oral and written exams, and various means.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Identify types of sentence	Sentences strictures	The presenc	Daily tests
2	2	Identify parts of speech	Past tense	The presenc	Daily tests
3	2	Recognizing names	Past simple	The presenc	Daily tests
4	2	Identify the functions of no	Past continuous	The presenc	Daily tests
5	2	Identify pronouns	Present tenses	The presenc	Daily tests
6	2	Identify traits	Present Simple	The presenc	Daily tests

7	2	Recognize the situation	Present continuous	The presenc	Daily tests
8	2	Recognizing the passive vo	Future tense	The presenc	Daily tests
9	2	Learn about the simple pres	Future simple	The presenc	Daily tests
10	2	present perfect	Paragraphs writing	The presenc	Daily tests
11	2	Learn about the present	Paragraphs writing	The presenc	Daily tests
12	2	continuous tense	Paragraphs writing	The presenc	Daily tests

11. Course Evaluation

Attendance 5 + Daily exams and assignments 2 + Reports 3 + Monthly exam 40 = 50 , The final exam is 50

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Cambridge English: Preliminary
Recommended books and references (scientific journals, reports…)	Cambridge English: Preliminary
Electronic References, Websites	An English videos

Course Description Form

1. Course Name: Basics of field crops
2. Course Code:
0C24202
3. Semester / Year: first semester / second year
4. Description Preparation Date: 14 / 2/ 2024
5. Available Attendance Forms: present way
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours / 3 Units
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Shaimaa Ibrahim Mahmood AL Refai Email: Shaimaaibrahim@mu.edu.iq
8. Course Objectives

Course Objectives **• Strengthening efforts aimed at using and prope managing water resources.** **• Develop a future vision for developing water harvesting technologies to support water resourc** **• Increasing the volume of irrigation water availa for agricultural use, by adding dams, tanks, irrigation canals, and drilling wells, in addition development projects in this field and water supp projects.**	**1- The course examines the identification of the mo important grain crops in Iraq and the world** **2-It includes studying the scientific methods used growing grain crops** **3 -Study the appropriate environmental conditions growing each important field crop** **4- Defining the most important ways to increase productivity for each field crop** **5-Study the problems related to pests and diseases each field crop**

9. Teaching and Learning Strategies	
Strategy	**1- Explanation and clarification** **2- Lecture method** **3- Student groups** **4- Practical lessons in agricultural fields** **5- Scientific trips to learn about field crops in Iraq**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first week	**2Theoretical 2Practical**	memorizing, understanding , analyzing, and applying	Field crops: their definition, Its development, its creators	**Practical lecture and discussion**	**Exams , reports, discussions Quizzes**
second week	**2Theoretical 2Practical**	memorizing, understanding , analyzing, and applying	Environmental factors in Iraq and in The world and its relationship to crop growth Field, location and surface, climate Soil, water resources	**Practical lecture and discussion**	**Exams , reports, discussions**
the third week	**2Theoretical 2Practical**	memorizing, understanding , analyzing, and applying	division of field crops, According to the life cycle	**Practical lecture and discussion**	**Exams , reports, discussions**
fourth week	**2Theoretical 2Practical**	memorizing, understanding , analyzing, and applying	Temperature, factors affecting Heat, temperature relationship With crops, crop adaptation To reduce the effect of temperatures And temperature damage	**Practical lecture and discussion**	**Exams , reports, discussions**
The fifth week	**2Theoretical 2Practical**	memorizing, understanding , analyzing, and applying	For light, the importance of light for plants, Adaptation of plants to light, importance Light in seed germination	**Practical lecture and discussion**	**Exams , reports, discussions**
the sixth week	**2Theoretical 2Practical**	memorizing, understanding , analyzing, and applying	**First monthly exam**	**Practical lecture and discussion**	**Exams , reports, discussions**
Seventh week	**2Theoretical 2Practical**	memorizing, understanding , analyzing, and applying	Water, water in the soil and its extent Crops benefit from it, balance internal water of the plant, Water consumption, efficient Water use, effect of water deficiency On crops, drought damage	**Practical lecture and discussion**	**Exams , reports, discussions**
The eighth week	**2Theoretical 2Practical**	memorizing, understanding , analyzing, and applying	Soil, soil texture, composition Soil, soil components, matter Soil organics, soil water, Soil air, harmful effect Soil salts on crops	**Practical lecture and discussion**	
Week nine	**2Theoretical 2Practical**	memorizing, understanding , analyzing, and applying	Air, air pollution, wind effect Crops, soil erosion by Crop winds	**Practical lecture and discussion**	**Exams , reports, discussions**
The tenth week	**2Theoretical 2Practical**	memorizing, understanding	Mutual benefit, competition, opposition	**Practical lecture and**	**Exams , reports,**

		, analyzing, and applying		**discussion**	**discussions**
Week eleven	**2Theoretical 2Practical**	memorizing, understanding , analyzing, and applying	Seeds and their importance, composition and maturity Seed dormancy, diagnosis Seed grading screening, storage Seeds, marketing	**Practical lecture and discussion**	**Exams , reports, discussions**
The twelfth week	**2Theoretical 2Practical**	memorizing, understanding , analyzing, and applying	Weeds and ways to combat them	**Practical lecture and discussion**	**Exams , reports, discussions**
The thirteenth week	**2Theoretical 2Practical**	memorizing, understanding , analyzing, and applying	The updated one Agricultural courses	**Practical lecture and discussion**	**Exams , reports, discussions**
The fourteenth week	**2Theoretical 2Practical**	memorizing, understanding , analyzing, and applying	The updated one Breeding and improving field crops Major crops in the world And Iraq	**Practical lecture and discussion**	**Exams , reports, discussions**
The fifteenth week			**The second monthly exam**		

11. Course Evaluation

Attendance 5 + Daily exams and assignments 2 + Reports 3 + Practical exam 15 + Monthly exam 25 = 50 quest , The final exam is 20 practical + 30 theoretical

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Principles of field crops Dr.. Majeed Mohsen A Ansari Dr. Abdel Hamid Ahmed Al-Younis Dr.. Ghanem Saadallah Hasawi Dr. Wafqi Sha Al-Shamaa
Main references (sources)	From methodological books, help books, the Internet, and scientific research
Recommended books and references (scientific journals, reports...)	Iraqi Scientific journals in basic specializations
Electronic References, Websites	Al-Muthanna University e-learning website https://agr.mu.edu.iq/

Course Description Form

1. Course Name:
Principles of animal production
2. Course Code:
0C24201
3. Semester / Year:
autumn semester / first year
4. Description Preparation Date:
26/2/2024
5. Available Attendance Forms:
Present year
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Ass. Prof. Dhelal Mohammed Halboos Email: dhelalhalboos@mu.edu.iq
8. Course Objectives

Course Objectives	• **It aims for the student to recognize the economic importance of animal production, as well as the sciences associated with it and the relationship of animal production to plant production.**

9. Teaching and Learning Strategies	
Strategy	Audio methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the studen with the student's evaluation in class participation

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	memorizing, understanding, analyzing, and applying	Introduction to animal production and its economic importance	Practical lecture and discussion	Quiz
2	4	memorizing, understanding, analyzing, and applying	Factors affecting the production efficiency of farm animals	Practical lecture and discussion	Quiz

3	4	memorizing, understanding, analyzing, and applying	Obstacles facing animal production in Iraq and ways to improve them	Practical lecture and discussion	Quiz
4	4	memorizing, understanding, analyzing, and applying	Dairy cows, beef cows and dual-purpose cows	Practical lecture and discussion	Quiz
5	4	memorizing, understanding, analyzing, and applying	Exam	Practical lecture and discussion	Exam
6	4	memorizing, understanding, analyzing, and applying	Establishing and managing a flock of sheep and goats	Practical lecture and discussion	Quiz
7	4	memorizing, understanding, analyzing, and applying	Buffalo, general characteristics of buffalo	Practical lecture and discussion	Quiz
8	4	memorizing, understanding, analyzing, and applying	Poultry birds, the economic importance of poultry projects	Practical lecture and discussion	Quiz
9	4	memorizing, understanding, analyzing, and applying	Nutrition and fodder	Practical lecture and discussion	Quiz
10	4	memorizing, understanding, analyzing, and applying	Exam	Practical lecture and discussion	Exam
11	4	memorizing, understanding, analyzing, and applying	Health care for poultry birds	Practical lecture and discussion	Quiz
12	4	memorizing, understanding, analyzing, and applying	Genetic improvement in poultry	Practical lecture and discussion	Quiz
13	4	memorizing, understanding, analyzing, and applying	Sheep and goats economic importance	Practical lecture and discussion	Quiz
14	4	memorizing, understanding, analyzing, and applying	Classification and methods used for classification	Practical lecture and discussion	Quiz
15	4	memorizing, understanding, analyzing, and applying	Sheep breeding	Practical lecture and discussion	Quiz

11. Co2urse Evaluation

Attendance 5 + Daily exams and assignments 2 + Reports 3 + Practical exam 15 + Monthly exam 25 = 50 quest , The final exam is 20 practical + 30 theoretical

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Animal Production Zuhair Al-Jalili
Main references (sources)	1-Milk cattle production d. Spokesman Hamid Al-Qudsi 2- The basics of producing and raising sheep and goats, Dr. Jalal Elijah
Recommended books and references	Scientific journals in basic specializations

(scientific journals, reports…)	
Electronic References, Websites	Animal Science Journal

Course Description Form

1. Course Name: analytical chemistry

2. Course Code:

0024203

3. Semester / Year: second / second

4. Description Preparation Date: 14 / 2 / 2024

5. Available Attendance Forms: present way

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

60 hours / 3 Units

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

Name: Prof. Dr.Mohammed Radwan Mohmoud
Email: modrn@mu.edu.iq

8. Course Objectives

Course Objective	**-1 Providing students with general information about analytical chemistry** **2- Introducing students to ways to express concentrations and their types** **3- Introducing students to strong and weak acids and bases** **4- Explaining to students what Buffer's solutions are and their types, with examples** **5- Introducing students to the definition of salts and their types, with theoretic examples**

9. Teaching and Learning Strategies

Strategy	**1- Explanation and clarification** **2-Lecture method** **3-Student groups** **4- Practical lessons in laboratories**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first week	**2Theoretical 3Practical**	**memorizing, understanding, analyzing,**	**Learn about laboratory safety**	**Practical lecture and discussion**	**Written tests**

		and applying			
second week	**2Theoretical 3Practical**	**memorizing, understanding, analyzing, and applying**	**Acids and bases**	**Practical lecture and discussion**	**Written tests**
the third week	**2Theoretical 3Practical**	**memorizing, understanding, analyzing, and applying**	**Laboratory safety**	**Practical lecture and discussion**	**Written tests**
fourth week	**2Theoretical 3Practical**	**memorizing, understanding, analyzing, and applying**	**Laws of acids and bases**	**Practical lecture and discussion**	**Written tests**
The fifth week	**2Theoretical 3Practical**	**memorizing, understanding, analyzing, and applying**	**Identify hazardous chemicals**	**Practical lecture and discussion**	**Written tests**
the sixth week	**2Theoretical 3Practical**	**memorizing, understanding, analyzing, and applying**	**Salts**	**Practical lecture and discussion**	**Written tests**
Seventh week	**2Theoretical 3Practical**	**memorizing, understanding, analyzing, and applying**	**Types of salts**	**Practical lecture and discussion**	**Written tests**
The eighth week	**2Theoretical 3Practical**	**memorizing, understanding, analyzing, and applying**	**Identify methods for preparing liquid solutions**	**Practical lecture and discussion**	**Written tests**
Week nine	**2Theoretical 3Practical**	**memorizing, understanding, analyzing, and applying**	**Methods for preparing liquids**	**Practical lecture and discussion**	**Written tests**
The tenth week	**2Theoretical 3Practical**	**memorizing, understanding, analyzing, and applying**	**Structured solutions**	**Practical lecture and discussion**	**Written tests**
Week eleven	**2Theoretical 3Practical**	**memorizing, understanding, analyzing, and applying**	**Solve problems on ways to express concentrations**	**Practical lecture and discussion**	**Written tests**
The twelfth week	**2Theoretical 3Practical**	**memorizing, understanding, analyzing, and applying**	**First month exam**	**Practical lecture and discussion**	**Written tests**
The thirteenth week	**2Theoretical 3Practical**	**memorizing, understanding, analyzing, and applying**	**An overview of volumetric analysis and its types**	**Practical lecture and discussion**	**Written tests**
The fourteenth week	**2Theoretical 3Practical**	**memorizing, understanding, analyzing, and applying**	**Volumetric analysis An overview of gravimetric analysis and its types**	**Practical lecture and discussion**	**Written tests**
The fifteenth week			**First month exam**	**Practical lecture and discussion**	

11. Course Evaluation

Attendance 5 + Daily exams and assignments 2 + Reports 3 + Practical exam 15 + Monthly exam 25 = 50 quest ,The final exam is 20 practical + 30 theoretical

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1 -Volumetric and gravimetric analytical chemistry: written by Hadi Awad 2 -Analytical Chemistry - Skoog
Main references (sources)	From methodological books, help books, the Internet, and scientific research Volumetric and gravimetric analytical chemistr written by Hadi Awad
Recommended books and references (scientific journals, reports…)	Iraqi Scientific journals in basic specializations
Electronic References, Websites	Al-Muthanna University e-learning website https://agr.mu.edu.iq/

Course Description Form

1. Course Name: Plant nutrition	
2. Course Code:	
0014203	
3. Semester / Year:	
Second / Second year	
4. Description Preparation Date:	
14/2/2024	
5. Available Attendance Forms:	
Present way	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours / 3 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Hazim Sultan Safana Email:Hazim-agr-70@mu.edu.iq	
8. Course Objectives	
Course Objectives	**• Introduction to plant nutrition** **• Explanation of macro and micro nutrients** **• Classifications of nutrients according to their importance and functions** **• Methods of calculating nutrient solutions** **• Detection of nutrients** **• Differences between passive absorption and active absorption** **• A brief idea about heavy metals and their effect on plants** **• Study the reasons for the appearance of symptoms of element deficiency on plants** **• Study the methods of water mass transfer within the plant body** **• Study the ways nutrients reach the plant** **• A simplified idea about the effects of stress on plants trees in citi and central islands**
9. Teaching and Learning Strategies	
Strategies	Ask students inferential questions Establishing training programs Finding solutions to the problems and obstacles tha students encounter in the practical part Enabling students to find solutions and applications f

	crisis situations

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the first	4	memorizing, understanding, analyzing, and applying	Introduction to pate nutrition	Attend	a daily test
the secon	4	memorizing, understanding analyzing, and applying	Taking plant samples preparing them for analysis	Attend	a daily tes
the third	4	memorizing, understanding analyzing, and applying	Estimating the moistu content of plant samp	Attend	a daily tes
the fourth	4	memorizing, understanding analyzing, and applying	Digestion of plant sam	Attend	a daily tes
Fifth	4	memorizing, understanding analyzing, and applying	Nitrogen in plants - symptoms of deficien Estimation of total nitrogen in plant samp	Attend	a dai test
VI	4	memorizing, understanding analyzing, and applying	Phosphorus in plant symptoms of deficien estimation of total phosphorus in plan samples	Attend	a daily tes
Seventh	4	memorizing, understanding analyzing, and applying	Potassium in plants symptoms of deficien Estimation of total potassium in plant samples -	Attend	a daily tes
VIII	4	memorizing, understanding analyzing, and applying	First month exam	Attend	a daily tes
Ninth	4	memorizing, understanding analyzing, and applying	Calcium and magnesi in plants - symptoms deficiency - estimatio calcium and magnesi in plant samples	Attend	a daily tes
The tenth	4	memorizing, understanding analyzing, and applying	Sulfur in plants - symptoms of deficien estimation of total sul in plant samples	Attend	a daily tes
eleventh	4	memorizing, understanding analyzing, and applying	Estimating cations c microelements in pla and studying the symptoms of their deficiency in plants. plants and studying t symptoms of their deficiency in plants	Attend	a dai test
twelveth	4	memorizing, understanding analyzing, and applying	Determination of chlo in plants	Attend	a daily tes

Thirteentl	4	memorizing, understanding analyzing, and applying	Second month exan	Attend	a daily tes
fourteentl	4	memorizing, understanding analyzing, and applying	Food farms	Attend	a daily tes
Fifteenth	4	memorizing, understanding analyzing, and applying	Nutrient solutions	Attend	a daily tes

11. Course Evaluation

Attendance 5 + Daily exams and assignments 2 + Reports 3 + Practical exam 15 + Monthly exam 25 = 50 quest , The final exam is 20 practical + 30 theoretical

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Plant Nutrition Book by Hamza Kadhim A Zubaidi, May God bless Najm Al-Nuaim
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Information and lectures from the Intern

Course Description Form

1. Course Name:
Computer applications 2
2. Course Code:
U024202
3. Semester / Year:
Second semester / second year
4. Description Preparation Date:
29\2\2024
5. Available Attendance Forms:
Actual presence
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours / 2 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Karrar Hameed Abdulkareem Email: khak9784@mu.edu.iq
8. Course Objectives

Course Objecti	• **The student gets to know Microsoft excel** • **The student should know advantages of Microsoft excel in real life.** • **The student should apply many examples that relative to agriculture sector as wel as other sectors.**

9. Teaching and Learning Strategies	
Strategy	1-Explanation and clarification. 2- Practical lessons. 3- Self-learning method through practical application individually..

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**memorizing,understanding, analyz and applying**	**memorizing**	**Explanation, presentation of t model and lectu**	**the exam**
second	2	**memorizing, understanding, analyzing, and applying**	**Tabs and totals**	**Explanation, presentation of t model and lectu**	**the exam**
third	2	**memorizing,understanding, analyz and applying**	**Workbooks and sheets**	**Explanation, presentation of t model and lectu**	**the exam**
fourth	2	**memorizing,understanding, analyz and applying**	**Practical Exampl**	**Practical sessio**	**the exam**

	Fifth	2	memorizing, understanding, analyzing, and applying	Practical Examp	Practical sessior	the exam
	Sixth	2	memorizing,understanding, analyz and applying	Workbooks desi	Explanation, presentation of th model and lectur	the exam
	Seventh	2	memorizing,understanding, analyz and applying	Fundamentals c data entry	Explanation, presentation of th model and lectur	the exam
	Eighth	2	memorizing,understanding, analyz and applying	Fundamentals c data entry	Explanation, presentation of th model and lectur	the exam
	Ninth	2	memorizing,understanding, analyz and applying	Fundamentals c data entry	Explanation, presentation of th model and lectur	the exam
	Tenth	2	memorizing,understanding, analyz and applying	Practical Examp	Practical sessior	the exam
	Elevent	2	memorizing,understanding, analyz and applying	Practical Examp	Practical sessior	the exam
	Twelfth	2	memorizing,understanding, analyz and applying	Tables	Explanation, presentation of th model and lectur	the exam
	Thirteen	2	memorizing,understanding, analyz and applying	Charts	Explanation, presentation of th model and lectur	the exam
	fourteen	2	memorizing,understanding, analyz and applying	Practical Examp	Practical sessior	the exam
	Fifteent	2	memorizing,understanding, analyz and applying	Practical Examp	Practical sessior	the exam

11. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

12. Learning and Teaching Resources

Required textbooks (curricu books, if any)	
Main references (sources	1- Microsoft Excel 2016 Step by Step 1st Edition by Curt Frye 2- Microsoft Excel 2016 prepared by Muhammad Malik.
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	https://support.microsoft.com/en-gb/office/introduction-t excel-starter-601794a9-b73d-4d04-b2d4-eed4c40f98be

Course Description Form

1. Course Name: Microbiology	
2. Course Code:	
0C14201	
3. Semester / Year:	
First semester / second year	
4. Description Preparation Date:	
14 / 2 / 2024	
5. Available Attendance Forms:	
Present way	
6. Number of Credit Hours (Total) / Number of Units (Total) **:-**	
60 hours / 3 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: :- Assistant Professor .Sofia Jabbar Jassim Email: sofia.jabbar@mu.edu.iq	
8. Course Objectives	
Course Objective	**1- Learn about the types of microorganisms (bacteria, fungi, algae, snakeworms, parasites)** • **2- Knowing the structure of bacterial and fungal cells, their physiology, nutrition, metabolism, and these biology** • **3--Knowledge of bacterial families and their characteristics** • **4-Knowing the types of fungi.** • **5- Access to the most important microbiology laboratory instructions** **6-Knowledge of sterilization methods for materials and equipment used in the laborato** • **7-Knowing the types and methods of preparing media used in growing microscopic organisms** • **8-Knowing the method of dyeing** • **9-Study of bacterial counting methods**
9. Teaching and Learning Strategies	
Strategy	Method of discussion, lecture and interrogation

10. Course Structure

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

1	4	Memorize, understand analyze	Definition of biology ar classification of sciences	The lectur and Discussio	the exams Editorial
2	4	Memorize, understand analyze	Bacterial shapes and exter surface components for the bacterial cell	The lectur and Discussio	the exams Editorial
3	4	Memorize, understand, analyze	Internal components of bacterial cell	The lectur and Discussio	the exams Editorial
4	4	Memorize, understand, analy	Bacterial growth and reproduction	The lectur and Discussio	the exams Editorial
5	4	Memorize, understand,6anal	Nutrition of microorganisms	The lectur and Discussio	the exams Editorial
7	4	Memorize, understand, analy	Fungi	The lectur and Discussio	the exams Editorial
8	4	Memorize, understand, anal	Protozoa (parasites)	The lectur and Discussio	the exams Editorial
9	4	Memorize, understand, analy	Viruses	The lectur and Discussio	the exams Editorial
10	4	Memorize, understand, analy	Microbial genetics	The lectur and Discussio	the exams Editorial

11. Course Evaluation

Attendance 5 + Daily exams and assignments 2 + Reports 3 + Practical exam 15 + Monthly exam 25 = 50 quest , The final exam is 20 practical + 30 theoretical

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Microbiology
Main references (sources)	Bacteriology theoretical part Bacteriology practical part
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Plant classification
2. Course Code:
0024202
3. Semester / Year:
Second semester / Second year
4. Description Preparation Date:
14/2/2024
5. Available Attendance Forms:
Present way
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours / 3 Units
7. Course administrator's name (mention all, if more than one name)
Name: Hazim Sultan Safana Email:Hazim-agr-70@mu.edu.iq

8. Course Objectives	
Course Objectives	**• Researches plant taxonomy on the principles adopted in plant taxonomy and the applied fields of taxonomy and relationships between plants** **• It includes knowledge of the different plant organs through which plant can be classified** **• Knowing the vegetative and reproductive characteristics and the importance in plant classification** **• Methods used in plant classification** **• Study the evolutionary importance of reproductive organs** **• Study of monocotyledonous and dicotyledonous plants**

9. Teaching and Learning Strategies	
Strategies	**Ask students inferential questions** **Establishing training programs** **Finding solutions to the problems and obstacles that students encounter the practical part** **Enabling students to find solutions and applications for crisis situation**

10. Course Structure

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

the first	4	Explanations , presentation of the model and lucture	Introduction to plant classification and its importance - the foundations of plant classification and general terminology about classification	Attend	a daily test
the secon	4	Explanations , presentation of model and lucture	Applied fields of taxonomy - relationsh between plants	Attend	a daily test
the third	4	Explanations , presentation of model and lucture	Classification system ancient and modern classification pattern scientific nomenclatu its laws and taxonom ranks	Attend	a daily test
the fourth	4	Explanations , presentation of model and lucture	Primitive and advanc traits in plant parts vegetative and reproductive traits a their importance in classification	Attend	a daily test
Fifth	4	Explanations , presentation of model and lucture	Installation of flora organs on the floral ste flower symmetry - number of flower rin and number of memb in one ring	Attend	a daily t
VI	4	Explanations , presentation of model and lucture	Floral systems - flor equation - Al-Tamish	Attend	a daily test
Seventh	4	Explanations , presentation of model and lucture	Methods of studyin taxonomic units comparatively	Attend	a daily test
VIII	4	Explanations , presentation of model and lucture	The evolutionary importance of reproductive parts - n flowering vascular pla flowering vascular pla	Attend	a daily test
Ninth	4	Explanations , presentation of model and lucture	Evolutionary characteristics of flowering plants - th origin of flowering pla	Attend	a daily test
The tenth	4	Explanations , presentation of model and lucture	Study of plant group and confirmation of s plants and the characteristics of fami of gymnosperm plan	Attend	a daily test
eleventh	4	Explanations , presentation of model and lucture	Monocot and dicotyledonous plan	Attend	a daily t
twelveth	4	Explanations , presentation of model and lucture	Description of select families of monocot such as the Najiliyya the Saidia	Attend	a daily test
Thirteenth	4	Explanations , presentation of model and lucture	Description of select dicotyledons such a leguminous, mallow saprophytic, and asp	Attend	a daily test
fourteenth	4	Explanations , presentation of model and lucture	Description of the Crusader, Compoun	Attend	a daily test

			Cucumber, and Solanaceae families		
Fifteenth	4	Explanations , presentation of model and lucture	Plants of the Iraqi environment	Attend	a daily test

11. Course Evaluation

Attendance 5 + Daily exams and assignments 2 + Reports 3 + Practical exam 15 + Monthly exam 25 = 50 quest , The final exam is 20 practical + 30 theoretical

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Plant classification, Dr. Hussein Ali Al-Moussawi
Main references (sources)	Recent articles from the Internet and fron specialized scientific journals, the Iraqi Agricultural Sciences Journal, and the virtu library
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic References, Websites	Plant taxonomy

Course Description Form

1. Course Name:
Agricultural guidance
2. Course Code:
0C14202
3. Semester / Year:
first Semester / second year
4. Description Preparation Date
12 / 2 / 2024
5. Available Attendance Forms:
In a present way
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours / 2 units
7. Course administrator's name (mention all, if more than one name)
Name: Alaa Hussein Abed Email: alaahussein73@mu.edu.iq
8. Course Objectives

Course Objectives	• Teaching and introducing students to the most important link in the agricultural extension system, which is the agricultural extension worker and his role in transferring scientific material from scientific research departments and delivering it to farms with some ease and guidance. • Teaching students the art of adopting positive ideas in the field of agriculture

9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives B - The program's skill objectives 1- Graduation research. 2- Scientific reports 3- Linking information to engineering reality

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	memorizing, understar practical application	A historical overview o agricultural extension	Lecture and discussion	Oral tests
2	2	memorizing, understar practical application	Types of extension traini	Lecture and discussion	Quick exam

3	2	memorizing, understar practical application	Communication proces	Lecture and discussion	Oral tests
4	2	memorizing, understar practical application	The process of adoption a spread of modern innovations	Lecture and discussion	Quick exam
5	2	memorizing, understar practical application	- Rural leadership	Lecture and discussion	Oral tests
6	2	memorizing, understar practical application	Planning extension progra	Lecture and discussion	Quick exam
7	2	memorizing, understar practical application	- Agricultural extensio methods and extensio methods	Lecture and discussion	Written exa
8	2	memorizing, understar practical application	The philosophy of agricultural extensio	Lecture and discussion	Oral tests
9	2	memorizing, understar practical application	Rank straight wings. Half - wing rank.	Lecture and discussion	Quick exam
10	2	memorizing, understar practical application	The importance of usi modern irrigation methods and their economic effects	Lecture and discussion	Oral tests
11	2	memorizing, understar practical application	The role of agricultur extension in preservir archaeological areas	Lecture and discussion	Quick exam
12	2	memorizing, understar practical application	Water crisis	Lecture and discussion	Oral tests

11. Course Evaluation

Attendance 5 + daily exams and assignments 2 + reports 3 + monthly exam 40 = 50, final exam 50

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Principles of agricultural extension - Abdullah Al-Samarrai**
Main references (sources)	Planning extension programs - Abdulla Al-Samarrai 1992 Agricultural Extension Science - Adna Hussein Al-Gharji 1990
Recommended books and references (scientific journals, reports…)	-Iraqi Agriculture Journal -Magazines dealing with beekeeping -Bulletins issued by agricultural companies
Electronic References, Websites	All agricultural magazine sites

Course Description Form

1. Course Name:
Computer applications 1
2. Course Code:
U014201
3. Semester / Year:
First semester / second year
4. Description Preparation Date:
7\3\2024
5. Available Attendance Forms:
Actual presence
6. Number of Credit Hours (Total) / Number of Units (Total)
30 Hours / 2 Units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Karrar Hameed Abdulkareem Email: khak9784@mu.edu.iq
8. Course Objectives

Course Objecti	• **The student gets to know Microsoft PowerPoint** • **The student should know advantages of Microsoft PowerPoint in real life.** • **The student should apply many examples that relative to agriculture sector as wel as other sectors.**

9. Teaching and Learning Strategies

Strategy	1-Explanation and clarification. 2- Practical lessons. 3- Self-learning method through practical application individually.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	memorizing, understanding, analyzi and applying	**Introduction to Microsoft PowerPo**	**Explanation, presentation of t model and lectu**	**Exam**
second	2	memorizing, understanding, analyzi and applying	**Tabs and groups**	**Explanation, presentation of th model and lectur**	**Exam**
third	2	memorizing, understanding, analyzi and applying	**Tabs and groups**	**Explanation, presentation of th model and lectur**	**Exam**
fourth	2	memorizing, understanding, analyzi	**Practical Exampl**	**Practical sessior**	**Exam**

			and applying			
	Fifth	2	memorizing, understanding, analyzi and applying	**Practical Examp**	**Practical sessior**	**Exam**
	Sixth	2	memorizing, understanding, analyzi and applying	**Tables**	**Explanation, presentation of th model and lectur**	**Exam**
	Seventh	2	memorizing, understanding, analyzi and applying	**Deals with movi**	**Explanation, presentation of th model and lectur**	**Exam**
	Eighth	2	memorizing, understanding, analyzi and applying	**Deals with movi**	**Explanation, presentation of th model and lectur**	**Exam**
	Ninth	2	memorizing, understanding, analyzi and applying	**Shapes, smartar and charts**	**Explanation, presentation of th model and lectur**	**Exam**
	Tenth	2	memorizing, understanding, analyzi and applying	**Practical Examp**	**Practical sessior**	**Exam**
	Elevent	2	memorizing, understanding, analyzi and applying	**Practical Examp**	**Practical sessior**	**Exam**
	Twelfth	2	memorizing, understanding, analyzi and applying	**Shapes, smartar and charts**	**Explanation, presentation of th model and lectur**	**Exam**
	Thirteen	2	memorizing, understanding, analyzi and applying	**Shapes, smartar and charts**	**Explanation, presentation of th model and lectur**	**Exam**
	fourteen	2	memorizing, understanding, analyzi and applying	**Practical Examp**	**Practical sessior**	**Exam**
	Fifteent	2	memorizing, understanding, analyzi and applying	**Practical Examp**	**Practical sessior**	**Exam**

11. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	1- Microsoft Excel 2016 Step by Step 1st Edition by Curtis Frye 2- Microsoft Excel 2016 prepared by Muhammad Malik
Recommended books and references (scientific journals, reports…)	
Electronic References, Website	**https://edu.gcfglobal.org/en/powerpoint2010/slide-basics/1**

Course Description Form

1. Course Name:	
Biotechnology	
2. Course Code:	
0024303	
3. Semester / Year:	
Second semester / third year	
4. Description Preparation Date:	
2024/02/14	
5. Available Attendance Forms:	
Presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours (30 theoretical + 30 practical) / 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Assist prof. Dr. Difaf jabbar shamran Email:dhifaf15@mu.edu.iq	
8. Course Objectives	
Course Objectives	Learn about biotechnology • Study of nucleic acids and their structure • Study gene expression and ways to regulate it • Knowledge of life technologies used genetic engineering • Identify methods of rearranging nucleic acids and transferring genes between different species and races • Identify applications life technologies in agricultural, medical, industrial and other various fields
9. Teaching and Learning Strategies	
Strategies	A- Cognitive objectives 1- Learn about life technologies 2- Recognizing the importance of life technologies 3- The reasons that led to the development of biotechnology 4- Identify the methods of genetic expression of different genes and th specialization occurring in cells. 5- The student will learn genetic engineering techniques, genetic modification methods, and the possibility of using them in the field o plant protection from pathogens. B- Skills goals 1- Students' knowledge of nucleic acid extraction techniques 2- Identify methods of amplifying DNA using PCR technology 3- Identify methods of electrophoresis to cut DNA 4- Identify the bioreactors used in biomanufacturing

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the first	4		Introduction to the science of life technologies, the stages of its development, and the reasons for its development	Attend	a daily test
the second	4		Experiments to prove genetic material, the structure of DNA, and the difference between eukaryotes and prokaryotes	Attend	a daily test

the third	4		RNA structure, its different types and the differences between them	Attend	a daily test
the fourth	4		DNA replication enzymes involved in replication and the stages of replication	Attend	a daily test
Fifth	4		Gene expression, mRNA cloning, its stages and trimming processes	Attend	a daily test
sixth	4		Monthly exam	Attend	a daily test
Seventh	4		Genetic expression, translation, protein synthesis, stages of polypeptide formation and subsequent processes	Attend	a daily test
VIII	4		Regulation of gene expression, types of genes, induced and repressor expression, the concept of the operon, examples of it	Attend	a daily test
Ninth	4		Introduction to genetic engineering	Attend	a daily test
The tenth	4		Plasmids vectors	Attend	a daily test
eleventh	4		Cloning methods for inserting genes into cells	Attend	a daily test
twelfth	4		Nanotechnology and its types of uses	Attend	a daily test
Thirteenth	4		Monthly exam	Attend	a daily test
fourteenth	4		Bioreactors Biofuels		
Fifteenth	4		Comprehensive exam		

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Plant biotechnology, K. G. RAMAWAT Udaipur-India
Recommended books and references (scientific journals, reports...)	Iraqi academic books and journals
Electronic References, Websites	All websites related to life technologies Wikipedia, NCBI

Course Description Form

1. Course Name:
Insect physiology
2. Course Code:
0014305
3. Semester / Year:
First semester /Third
4. Description Preparation Date:
27 \2\ 2024
5. Available Attendance Forms
: In person
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (30 theoretical + 30 practical) / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Khalid Jaber AbdelRazzaq Email: khadry.ahmed@mu.edu.iq
8. Course Objectives :

Course Objective	**To introduce the importance of insect physiology, its basics, practical applications, and the functions of insect body organs.**
9. Teaching and Learning Strategies	
Strategy	1-Sudden daily and continuous weekly tests 2-Exercises and activities in the classroom 3- Directing students to some websites

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorize, understand. analysis	The body wall in insects: its importance in the life of insects and its components, moulting in insects.	Lecture and discussion	Written test
2	4	Memorize, understand. analysis	Digestive system: - The physiological functions of the parts of the digestive canal, absorptive digestion, the role of living organisms in digesting food materials.	Lecture and discussion	Written tests
3	4	Memorize, understand. analysis	Excretory system in insects: the typical excretory system Methods of removing toxic and excess substances, the role of the device in water balance.	Lecture and discussion	Written tests
4	4	Memorize, understand. analysis	Respiratory system: How to breathe in terrestrial and aquatic parasitic insects	Lecture and discussion	Written tests

5	4	Memorize, understand. analysis	Circulatory system: Description of the system, blood and its chemical components	Lecture and discussion	Written tests
6	4	Memorize ,understand. analysis	Functions of blood cells and blood plasma	Lecture and discussion	Written tests
7	4	Memorize, understand. analysis	The nervous system in insects: Description of the system	Lecture and discussion	Written tests
8	4	Memorize, understand. analysis	Method of transmitting nerve signals and sense organs	Lecture and discussion	Written tests
9	4	Memorize, understand. analysis	The reproductive system in insects and reproductive organs	Lecture and discussion	Written tests
10	4	Memorize, understand. analysis	How eggs and sperm are formed in the female and male systems	Lecture and discussion	Written tests
11	4	Memorize, understand. analysis	Hormones: their types	Lecture and discussion	Written tests
12	4	Memorize, understand. analysis	The role of hormones in growth,	Lecture and discussion	Written tests
13	4	Memorize, understand. analysis	development, reproduction and insect growth regulators	Lecture and discussion	Written tests
14	4	Memorize,under stand. analysis	Pheromones: their types, their role in the life of the insect.	Lecture and discussion	Written tests

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Insect physiology\Dr. Thabet Abdel Moneim Al-Darkzali
Main references (sources)	Lectures of insect physiology by (Raad Fadh 2010)
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	All entomology e-journals

Course Description Form

1. Course Name:
Parasitic Nematodes
2. Course Code:
0024304
3. Semester / Year: 2024
Second semester / third year
4. Description Preparation Date:
2024/02/14
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (30 theoretical + 30 practical) / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Ahmed Shamkhi Jabbar Email: ahmedshmky65@mu.edu.iq
8. Course Objectives

Course Objectives	• Identify nematode diseases that affect plants and their life cyc • Knowing how to isolate and diagnose nematodes in the laborat • Knowing the appropriate methods to combat caecilians, wheth using agricultural or natural methods, using biological or chemical methods, or using resistant varieties. • Identify the role of nematodes as vectors of viral and bacteria diseases and how to prevent and reduce infection in the field • It highlights the skill of field dealing with farms in explaining problems of nematode diseases and methods of controlling them
9. Teaching and Learning Strategies	
Strategy	By using theoretical lectures and practical lessons in the laboratory a field visits to the fields, using illustrative images and videos related to scientific subject, as well as searching the Internet to solve the questic posed by the teacher and holding a discussion circle on the topics presented.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical and 2 practical	Definition of (nematodes)	Nematodes	Using PowerPoint, field visits, and student discussions	Exams, reports, discussions, quizzes
2	2 theoretical and 2 practical	nematodes	The economic importance of caecilians as important pests	Using PowerPoint, field visits, and student discussions	Exams, reports, discussions, quizzes
3	2 theoretical and 2 practical	nematodes	Its general features - the nature of its presence and spread, with a focus on plant nematodes	Using PowerPoint, field visits, and student discussions	Exams, reports, discussions, quizzes
4	2		Study of important	Using	Exams,

	theoretical and 2 practical	nematodes	morphological characteristics in terms of size and shape	PowerPoint, field visits, and student discussions	reports, discussions, quizzes
5	2 theoretical and 2 practical	nematodes	External - body wall, digestive tract (oral cavity - esophagus - intestine....)	Using PowerPoint, field visits, and student discussions	Exams, reports, discussions, quizzes
6	2 theoretical and 2 practical	nematodes	The excretory system - the reproductive system - the nervous system and the sense organs	Using PowerPoint, field visits, and student discussions	Exams, reports, discussions, quizzes
7	2 theoretical and 2 practical	nematodes	Classification of plant nematodes, with a study and description of the common and important genera of the Iraqi nemat ode	Using PowerPoint, field visits, and student discussion s	Exams, reports, discussions, quizzes
8	2 theoretical and 2 practical	nematodes	Environmental factors and their relationship to nematode activity and reproduction	Using PowerPoint, field visits, and student discussion s	Exams, reports, discussions, quizzes
9	2 theoretical and 2 practical	nematodes	Soil and its various qualities - moisture - temperature - nutrition	Using PowerPoint, field visits, and student discussion s	Exams, reports, discussions, quizzes
10	2 theoretical and 2 practical	nematodes	Plant hosts, disease symptoms caused by nematode infection and the resulting damage	Using PowerPoint, field visits, and student discussion s	Exams, reports, discussions, quizzes
11	2 theoretical and 2 practical	nematodes	Study of the widespread and important diseases caused by nematodes in terms of their spread factors and symptoms	Using PowerPoint, field visits, and student discussion s	Exams, reports, discussions, quizzes
12	2 theoretical and 2 practical	nematodes	The nature of the nematode damage that causes the disease - its reproduction and life cycle	Using PowerPoint, field visits, and student discussion s	Exams, reports, discussions, quizzes
13	2 theoretical and 2 practical	nematodes	Methods of prevention, reducing infection, and resistance to parasites, especially those diseases caused by some common species.	Using PowerPoint, field visits, and student discussion s	Exams, reports, discussions, quizzes

14	2 theoretical and 2 practical	nematodes	Transmission of some plant phytophages by caecilians and the relationship between them, methods of resistance to caecilians (nematode pests)	Using PowerPoint, field visits, and student discussions	Exams, reports, discussions, quizzes
15	2 theoretical and 2 practical	nematodes	Resistance through agricultural and biological methods - resistance through natural methods - resistant varieties and strains - chemical resistance using pesticides	Using PowerPoint, field visits, and student discussions	Exams, reports, discussions, quizzes

11. Course Evaluation	
A theoretical monthly exam of 30 marks, divided into 25 marks, a written exam and 5 marks distributed between the daily and oral exams and reports, and a practical exam of 20 marks divided into 15 marks for the monthly exam and 5 marks distributed as in the theoretical exam.	
12. Learning and Teaching Resources	
Required textbooks (curricular books, i any)	Books available
Main references (sources)	- Abu Gharbia, Walid Ibrahim, Ahmed Saad Al-Hazm Zuhair Aziz Estefan and Ahmed Abdel Samie Dawab (2010). Plant Nematodes in Arab Countries (Parts One a Two), Dar Wael for Publishing and Distribution, 824 pages. - Al-Hazmi, Ahmed Saad (2009). Introduction to plan nematology. Scientific Publishing and Press, King Sau University, Kingdom of Saudi Arabia, 440 pages. - Sharif, Fayyad Muhammad (2012). Nematode diseases plants and primary animals. Al-Dhakra Publishing an Distribution, Baghdad, Iraq, 248 pages. - Othman, Ahmed Ahmed (2008) The World of Nematodes: The Problem - The Solution. Arab Publishi and Distribution House, Cairo, Arab Republic of Egyp 600 pages.
Recommended books and references (scientific journals, reports...)	- Journals dealing with nematology - Bulletins issued by agricultural companies
Electronic References, Websites	- All Arab and international agricultural journal websit published in English

Course Description Form

1. Course Name:
Bees breeding
2. Course Code:
0024307
3. Semester / Year:
Second Semester / 2024
4. Description Preparation Date
2024/02/14
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (30 theoretical + 30 practical) / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Alaa Hussein Abed Email: alaahussein73@mu.edu.iq

8. Course Objectives	
Course Objectives	• Study of modern methods in beekeeping • Study the philosophy of beekeeping • The importance of the study of beekeeping • Knowledge of pest control methods affecting the bee population • Identify the bees • •Identify ways to sort honey • •Benefits of bee range products
9. Teaching and Learning Strategies	
Strategy	A-Cognitive objectives A-1: Identify the members of the honeybee community A-2: Identify the philosophy and principles of beekeeping Collect information on beekeeping programs A-4 that the student mastered how to beekeeping. A-5 to be able to find solutions in the case of epidemic diseases tha affect honey bees and methods of treatment. B- the skills objectives of the program؛ B-1 - Students' knowledge of honey bee breeding and screening programs B-2 - take the decision quickly to control pests that affect honeybees B-3 - access to the information network and knowledge of modern beekeeping B-4 - Using modern technology in sorting honey B - 5 - To master the use of modern methods and advanced in education.

10. Course Structure

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

1	4	Save, understand, practical application	Historical basis of beekeeping, economic importance of beekeeping, bee species, hierarchy of bees	Lecture and discussion	Oral tests
2	4	Save, understand, practical application	Honey bee strains, genetic characteristics adopted for the diagnosis of bee strains, good qualities of honey - producing strains	Lecture and discussion	Quick exam
3	4	Save, understand, practical application	External anatomy of the body of the bees (head and appendages, chest and appendages, abdomen and appendages	Lecture and discussion	Oral tests
4	4	Save, understand, practical application	The digestive system and its accessories, the mechanics of digestion, the method of converting nectar to honey, the output device (sections, work and its role in the disposal of toxic substances and waste), bee glands	Lecture and discussion	Quick exam
5	4	Save, understand, practical application	Circulatory system, sections, functions, respiratory system, sections, respiratory stomata and distribution, nervous system	Lecture and discussion	Oral tests
6	4	Save, understand, practical application	Exam month only	Lecture and discussion	Quick exam
7	4	Save, understand, practical application	Female reproductive system, divisions, factors affecting the rate of egg count laid by the queen, male reproductive system, divisions	Lecture and discussion	Written exam
8	4	Save, understand, practical application	Life of members of the bee (queen, worker, male)	Lecture and discussion	Oral tests
9	4	Save, understand, practical application	The various phenomena in the life of members of the sect (expulsion, false mothers, theft) causes, signs of emergence, methods of control	Lecture and discussion	Quick exam
10	4	Save, understand, practical application	The basic rules for the establishment of apiary, the foundations of beekeeping, the catalysts for the success of standard beekeeping	Lecture and discussion	Oral tests

11	4	Save, understand, practical application	The importance of bees in the mixed pollination of plants, the number of beehives needed for pollination per unit area planted.	Lecture and discussion	Quick exam
12	4	Save, understand, practical application	Monthly Exam	Lecture and discussion	Oral tests
13	4	Save, understand, practical application	Diseases of bees	Lecture and discussion	Quick exam
14	4	Save, understand, practical application	Effect of chemical pesticides on honey bees, and methods of protecting bees from pesticide risk	Lecture and discussion	Oral tests
15	4	Save, understand, practical application	Birds harmful to grain in the stores and the most important types, the importance of agricultural and the most important damage and types of control methods used against them.	Lecture and discussion	Quick exam

11. Course Evaluation
Daily exam ; 10 grades Daily activity ; 10 grades Homework ; 10 grades Reports ; 10 grades Monthly exam ; 60 grades

12. Learning and Teaching Resources	
Required textbooks (curricular books, i any)	Bee Breeding and Silkworm / D. Louay Karim Al-Naji
Main references (sources)	1-Bee Breeding with modern ways / Said Al- Tazyi 2-Honey Bee Breeding / D. Hassan Ben Talib Al-loati
Recommended books and references (scientific journals, reports...)	-Iraqi Agriculture Journal -Magazines dealing with beekeeping -Bulletins issued by agricultural companies
Electronic References, Websites	All agricultural magazine sites

Course Description Form

1. Course Name:					
Design and analysis of experiments					
2. Course Code:					
0C14301					
3. Semester / Year:					
First semester / third year					
4. Description Preparation Date:					
2024/02/14					
5. Available Attendance Forms:					
Presence					
6. Number of Credit Hours (Total) / Number of Units (Total)					
60 hours (30 theoretical + 30 practical) / 3 units					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Ali Ajil Jassim Email: aliajil2005@mu.edu.iq					
8. Course Objectives					
Course Objectives	* Teaching the student that there are areas that depend on conducting experiments, and these experiments must be designed on scientific foundations * Analyzing experiments according to scientific methods and logical ste * Obtaining accurate results of the experiment leads to making the appropriate decision * Teaching the student many types of designs, as each experiment has specific design * Teaching the student how to test the significance of each mathematic model * Teaching the student that there are tests conducted before the experim and tests proposed after the experiment * Teaching the student that there are values that can be lost during the experiment and that they can be estimated				
9. Teaching and Learning Strategies					
Strategy	A- Cognitive objectives * Enables the student to understand the nature of experiments * Enabling the student to distinguish between each design and anothe * Enabling the student to focus on the importance and types of factori experiments * Enabling the student to know integration and its types * Teach the student when to use the splinter plot design B- The program's skill objectives * Skills for dealing with various types of experiences * Skills to distinguish between types of experiments and choose the correct mathematical model * Skills in using many types of experiments in practical applications				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorization, understanding, practical application	A historical overview of statistics, definition of statistics, division of statistics	Lecture and discussion	Oral exams
2	4	Memorization,	Measures of central	Lecture and	Quick exam

		understanding, practical application	tendency, measures of centralization	discussion	
3	4	Memorization, understanding, practical application	Measures of dispersion	Lecture and discussion	Oral exams
4	4	Memorization, understanding, practical application	Hypothesis testing, statistical errors, hypothesis t-test	Lecture and discussion	Quick exam
5	4	Memorization, understanding, practical application	Chi-square test	Lecture and discussion	Oral exams
6	4	Memorization, understanding, practical application	General concepts and definitions in designing and analyzing experiments،	Lecture and discussion	Quick exam
7	4	Memorization, understanding, practical application	Types of agricultural experiments, complete randomized design	Written exam	Written exam
8	4	Memorization, understanding, practical application	Means testing	Lecture and discussion	Oral exams
9	4	Memorization, understanding, practical application	Randomized complete block design	Lecture and discussion	Quick exam
10	4	Memorization, understanding, practical application	Latin square design	Lecture and discussion	Oral exams
11	4	Memorization, understanding, practical application	Factorial experiments, factorial experiments with two factors	Lecture and discussion	Quick exam
12	4	Memorization, understanding, practical application	Factorial experiments with three factors	Lecture and discussion	Oral exams
13	4	Memorization, understanding, practical application	Split plot design, with two factors	Lecture and discussion	Quick exam
14	4	Memorization, understanding, practical application	Split-plot design, with three factors	Lecture and discussion	Oral exams
15	4	Memorization, understanding, practical application	Correlation and simple linear regression	Written exam	Written exam

11. Course Evaluation	
- Theoretical tests: (daily exams - monthly exams - oral exams) - Practical tests: (daily exams - monthly exams - oral exams) - Theoretical and practical reports - Models for examination and practical experiments	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1. Design and analysis of experiments / Al-Rav and Khalfulla, 2000
Main references (sources)	
Recommended books and references (scientific	-Books specialized in designing agricultural

journals, reports...)	experiments
Electronic References, Websites	Articles published by academic and professional journals

Course Description Form

1. Course Name:	
Mycology II	
2. Course Code:	
0024302	
3. Semester / Year:	
the second semester / third year	
4. Description Preparation Date:	
2024/02/14	
5. Available Attendance Forms:	
Presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours (30 theoretical + 30 practical) / 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ali Faraj Jubair Email: alifj80@mu.edu.iq	
8. Course Objectives	
Course Objectives	• Teaching students about the types of ascomycetes basidiomycetes, a imperfect fungi that infect economic plants. • Determine the economic importance of the benefits and harms caused these fungi. • Identify various environmental factors and their impact on the spread fungi. • Identify the classes, orders, families, and individuals of these groups fungi that infect plants in particular. • Pathological symptoms caused by pathogenic fungi. • Finding the best ways to combat diseases through methods (chemica biological, integrated control programs)
9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives * The student gets to know the diseases that affect plants and their nam * To try to find out how pathogens are transmitted from one field to another or how the pathogen spreads through the same field. * The student must master how to prevent and control the occurrence diseases. * To be able to find solutions in cases of rapidly spreading epidemic diseases and ways to control them. * Identify quick methods for diagnosing fungal infections of plants. * The student must master how to disseminate the information obtained controlling the disease. B - The skills objectives of the course. * The student must master how to diagnose these diseases. * The student will be able to treat fungal infections that affect various plants. * To be proficient in using pest control machines. * To be proficient in using modern and advanced methods of pest contr

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorization, understanding,	Ascomycete fungi	Lecture and discussion	Oral exams

		practical application			
2	4	Memorization, understanding, practical application	Spherical ascomycete fungi	Lecture and discussion	Quick exam
3	4	Memorization, understanding, practical application	Ascomycete fungi with bottle-fruited fruits	Lecture and discussion	Oral exams
4	4	Memorization, understanding, practical application	Cup fungi	Lecture and discussion	Quick exam
5	4	Memorization, understanding, practical application	Basidiomycetes	Lecture and discussion	Oral exams
6	4	Memorization, understanding, practical application	Basidiom and types of fruiting bodies	Lecture and discussion	Quick exam
7	4	Memorization, understanding, practical application	Classifications of basidiomycetes	Written exam	Written exam
8	4	Memorization, understanding, practical application	Order of Rusts	Lecture and discussion	Oral exams
9	4	Memorization, understanding, practical application	Order of smut fungi	Lecture and discussion	Quick exam
10	4	Memorization, understanding, practical application	Class hymenobasidiomycetes	Lecture and discussion	Oral exams
11	4	Memorization, understanding, practical application	Order Agaricales	Lecture and discussion	Quick exam
12	4	Memorization, understanding, practical application	Division of Imperfect Fungi	Lecture and discussion	Oral exams
13	4	Memorization, understanding, practical application	Ranking of imperfect fungi	Lecture and discussion	Quick exam
14	4	Memorization, understanding, practical application	Imperfect fungal families	Lecture and discussion	Oral exams
15	4	Memorization, understanding, practical application	The most important types of imperfect fungi	Written exam	Written exam
11. Course Evaluation					
- Theoretical tests: (daily exams - monthly exams - oral exams) - Practical tests: (daily exams - monthly exams - oral exams) - Theoretical and practical reports - Models for examination and practical experiments					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			1. Principles of fungi and their plant disease/ Mahdi Alshukri 2. fungi / AlSuhaili etal 1990		

Main references (sources)	Basic of fungi/Abdulaziz Nukhailan
Recommended books and references (scientific journals, reports...)	- All Biological, Mycology Journals
Electronic References, Websites	- All e-journals (Mycology, Agricultural, Biological)

Course Description Form

1. Course Name:
Plant diseases (Plant pathology)
2. Course Code:
0024301
3. Semester / Year:
Second semester / third year
4. Description Preparation Date:
2024/02/14
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (30 theoretical + 30 practical) / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Ali Faraj Jubair Email: alifj80@mu.edu.iq
8. Course Objectives

Course Objectives	• Introducing the student to the various types of diseases that affect pla (fungal, bacterial, viral, nematode, and physiological). • Determine the economic importance of these diseases • Identify various environmental factors and their impact on the spread infectious plant diseases • Pathological symptoms caused by these diseases • Finding the best ways to combat diseases through methods (natu applied, mechanical, agricultural, biological, legislative, chemical, gene integrated control programs)
9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives * The student gets to know the diseases that affect plants and their name * To try to find out how pathogens are transmitted from one field to another or how the pathogen spreads through the same field. * The student must master how to prevent and control the occurrence of diseases. * To be able to find solutions in cases of rapidly spreading epidemic diseases and ways to control them. * Learn about modern methods of disease diagnosis and control. * The student must master how to disseminate the information obtained disease control. B - The skills objectives of the course. * The student must master how to diagnose these diseases. * The student will be able to treat diseases that affect plants * To be proficient in using disease control machines. * To be proficient in using modern and advanced methods of pest contr

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorization, understanding, practical application	History of the development of plant pathology introduction	Lecture and discussion	Oral exams
2	4	Memorization,	Some definitions and	Lecture and	Quick exam

		understanding, practical application	terms in plant diseases	discussion	
3	4	Memorization, understanding, practical application	Living standards of living organisms	Lecture and discussion	Oral exams
4	4	Memorization, understanding, practical application	Stages of disease development	Lecture and discussion	Quick exam
5	4	Memorization, understanding, practical application	development Diagnosing the pathogen and the host's response to the infection	Lecture and discussion	Oral exams
6	4	Memorization, understanding, practical application	Division of pathogens	Lecture and discussion	Quick exam
7	4	Memorization, understanding, practical application	Written exam	Written exam	Written exam
8	4	Memorization, understanding, practical application	The effect of pathogens on their hosts and Means of spread of pathogens	Lecture and discussion	Oral exams
9	4	Memorization, understanding, practical application	Resistance and defenses of the plant host against pathogens	Lecture and discussion	Quick exam
10	4	Memorization, understanding, practical application	Methods of controlling plant diseases	Lecture and discussion	Oral exams
11	4	Memorization, understanding, practical application	Fungi and the diseases they cause	Lecture and discussion	Quick exam
12	4	Memorization, understanding, practical application	Bacteria and the diseases they cause	Lecture and discussion	Oral exams
13	4	Memorization, understanding, practical application	Plant viruses and the diseases they cause	Lecture and discussion	Quick exam
14	4	Memorization, understanding, practical application	Other pathogens and the diseases they cause	Lecture and discussion	Oral exams
15	4	Memorization, understanding, practical application	Written exam	Written exam	Written exam
11. Course Evaluation					
- Theoretical tests: (daily exams - monthly exams - oral exams) - Practical tests: (daily exams - monthly exams - oral exams) - Theoretical and practical reports - Models for examination and practical experiments					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			1. The basics of fungi and their diseases / Dr.		

	Majeed al-Shukri 2. Diseases of field crops / Dr. Maysar Zarzis
Main references (sources)	- Iraqi Agriculture Journal - Journals dealing with diseases of all field crops - Bulletins issued by agricultural companies and pesticide companies
Recommended books and references (scientific journals, reports...)	- All agricultural sites and crop disease journals
Electronic References, Websites	- World Wide Web

Course Description Form

1. Course Name:

Weed control

2. Course Code:

0024306

3. Semester / Year:

Second semester / third year

4. Description Preparation Date:

2024/02/14

5. Available Attendance Forms:

Presence

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

60 hours (30 theoretical + 30 practical) / 3 units

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

Name: Associate Professor Dr. Husam Saadi Mogammed
Email: husam.saadi@mu.edu.iq

8. Course Objectives

Course Objectives	• Identification • Protection • Control • Production quality and quantity improvement

9. Teaching and Learning Strategies

Strategy	• Tutorials • Q&A discussions • Lectures • Practicals

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorization, understanding, practical application	Introduction/concept	Lecture and discussion	Oral exams
2	4	Memorization, understanding, practical application	Specifications of jungle plants	Lecture and discussion	Quick exam
3	4	Memorization, understanding, practical application	Additional specifications for the jungle	Lecture and discussion	Oral exams
4	4	Memorization, understanding, practical application	Specifications of bush seeds	Lecture and discussion	Quick exam
5	4	Memorization, understanding, practical application	The phenomenon of stillness	Lecture and discussion	Oral exams
6	4	Memorization, understanding, practical application	Jungle classification is natural	Lecture and discussion	Quick exam
7	4	Memorization, understanding, practical application	Industrial classification of jungles	Written exam	Written exam

8	4	Memorization, understanding, practical application	Methods of bush reproduction	Lecture and discussion	Oral exams
9	4	Memorization, understanding, practical application	Means of spreading bushes	Lecture and discussion	Quick exam
10	4	Memorization, understanding, practical application	Preventive means to reduce the spread	Lecture and discussion	Oral exams
11	4	Memorization, understanding, practical application	Mechanical control methods	Lecture and discussion	Quick exam
12	4	Memorization, understanding, practical application	Biological control methods	Lecture and discussion	Oral exams
13	4	Memorization, understanding, practical application	Agricultural practices	Lecture and discussion	Quick exam
14	4	Memorization, understanding, practical application	Chemical method	Lecture and discussion	Oral exams
15	4	Memorization, understanding, practical application	Integrated and sustainable pest control	Written exam	Written exam

11. Course Evaluation

1- Theoretical (monthly): 25%
2- Practical (monthly): 10%
3- Report and attendance: 5%
4- Daily tests: 10%
5- Final: 50%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	College books
Main references (sources)	Published research
Recommended books and references (scientific journals, reports...)	Scientific journals & reports
Electronic References, Websites	Professional, government & institutional publications

Course Description Form

1. Course Title:
Biochemistry
2. Course Code
0014301
3. Semester / Year
Second / autumn
4. The history of preparation of this description
26/2/2024
5. Available Attendance Forms
Came
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours theoretical and 3 hours practical Number of units 3
7. Course administrator's name (if more than one name)
Name: Prof. Jassim Qasim Manati Email: jasimiraqe@mu.edu.iq
8. Course Objectives

• **Introducing the student to the importance biochemistry** • **Carbohydrate study** • **Study of amino acids** • **Study of lipids** • **Nucleic acid study**	**Course Objectives:**

9. Teaching and Learning Strategies	
Audio methods (teaching explanation of the subject) Blackboard writing style The method of direct dialogue between the teacher and the student with the evaluation of student in the classroom participations	**Strategy**

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	The week
Rapid exam	Lecture	Carbohydrates - definition – sections	Theoretical lecture	4	1
Rapid exam	Lecture	Monosaccharides	Theoretical lecture	4	2
Rapid exam	Lecture	Low polysaccharides	Theoretical lecture	4	3
Rapid exam	Lecture	Polysaccharides	Theoretical lecture	4	4
First month exam	Theoretical exam	Examination	examination	4	5
Rapid exam	Lecture	Amino acids – their divisions – their interactions	Theoretical lecture	4	6

Rapid exam	Lecture	Proteins - their structure - construction - their divisions	Theoretical lecture	4	7
Rapid exam	Lecture	Fatty acids – their divisions – their interactions	Theoretical lecture	4	8
Rapid exam	Lecture	Simple sinters – their composition – their sections	Theoretical lecture	4	9
Second month exam	Theoretical exam	examination	examination	4	10
Rapid exam	Lecture	Compound and derived lipids - their composition - their divisions	Theoretical lecture	4	11
Rapid exam	Lecture	Nucleic acids, their importance	Theoretical lecture	4	12
Rapid exam	Lecture	Installation, Sections	Theoretical lecture	4	13
Rapid exam	Lecture	Enzymes, their qualities	Theoretical lecture	4	14
Rapid exam	Lecture	Factors affecting it	Theoretical lecture	4	15

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc

12. Learning and Teaching Resources

Foundations of Biochemistry **Ali Aldaoudi**	Required textbooks (methodology, if any)
Integrated Biochemistry Hohn W. Pelley	Main references (sources)
List of chemistry journals	Recommended books and references (scientific journals, reports…)
https://www.chemistry1science.com/2018/08/2-pdf_44.html	Electronic References, Websites

Course Description Form

1. Course Name:
Plant genetics
2. Course Code:
0014303
3. Semester / Year:
First semester/ Third
4. Description Preparation Date:
2024/02/14
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (30 theoretical + 30 practical) / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Mohanad . T . Muften Email: mohanadturki@mu.edu.iq
8. Course Objectives

Course Objectives	• Training students to apply the basic laws of Mendelian inheritance, and testing the extent to which the results match Mendel's laws using genetic hypotheses using the Chi-square test. • Identify some genetic concepts such as genetic interaction, genetic crossing over, linkage, and others • Teaching students the concepts of cytoplasmic inheritance and maternal influences • Teaching students the basic principles of clan inheritance • Teaching students the concepts of genetics and applications of quantitative genetics
Teaching and Learning Strategies	
Strategy	A- Cognitive objectives * The student learns about the concept of genetics * The student learns about Mendel's laws and mutations in Mendelian ratios * The student is able to solve exercises in the field of genetics using Mendel's laws, and ensure that the results from Mendel's laws match using the chi-square test. * The student will be trained to apply the most important genetic concepts in the laboratory * The student will be familiar with the most important applications of genetics in the field of plant breeding and improvement B - Course-specific skills. * Training the student to solve exercises using Mendel's laws * Enabling students to use the various techniques used in the field of reliance on genetic material and genetic variation among plants * Training students to use genetic concepts in plant breeding and improvement.

10. Course Structure

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

1	4	Genetics, its development, and the relationship of genetics to other sciences	Plant genetics	Lecture and discussion	Oral exams
2	4	Introducing the student to Mendel's first law, Mendel's second law, and an introduction to genetic	Plant genetics	Lecture and discussion	Quick exam
3	4	The student gets to know the types of genetic action	Plant genetics	Lecture and discussion	Oral exams
4	4	Genetic hypothesis and goodness-of-fit test (chi-square) with Mendelian	Plant genetics	Lecture and discussion	Quick exam
5	4	Learn about sex determination systems in living organisms, sex-linked genetics	Plant genetics	Lecture and discussion	Oral exams
6	4	Sex-determined inheritance, sex-influenced inheritance	Plant genetics	Lecture and discussion	Quick exam
7	4	The student learns what genetic crossing over, multiple genetic linkage, and chromosomal mapping	Plant genetics	Written exam	Written exam
8	4	Multiple allele inheritance	Plant genetics	Lecture and discussion	Oral exams
9	4	Nonlinear inheritance and the factors affecting it	Plant genetics	Lecture and discussion	Quick exam
10	4	Learn about the cell cycle and division process	Plant genetics	Lecture and discussion	Oral exams
11	4	The student will learn about the production of DNA, protein, and genetic code	Plant genetics	Lecture and discussion	Quick exam
12	4	Identify the equipment used in genetics laboratories	Plant genetics	Lecture and discussion	Oral exams
13	4	Application of genetic foundations in the field of plant breeding and improvement	Plant genetics	Lecture and discussion	Quick exam
14	4	The student learns the relationship between genes	Plant genetics	Lecture and discussion	Oral exams
15	4	Teaching the student what mutations are, their effects, and their benefits	Plant genetics	Written exam	Written exam
11. Course Evaluation					
- Theoretical tests: (daily exams - monthly exams - oral exams) - Practical tests: (daily exams - monthly exams - oral exams)					

- Theoretical and practical reports - Models for examination and practical experiments	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Adnan Hassan Muhammad (1982) Basics of Genetics. Dar Al-Kutub for Printing and Publishing. Mosul
Main references (sources)	Shawqi, Ahmed Shawqi, Fathi Muhammad Abd al-Tawab, and Ali Zain al-Abidin, Id al-Salam. 1993. Principles of genetics translated book. Arab House for Publishing and Distribution. Cairo
Recommended books and references (scientific journals, reports...)	- All agricultural magazine sites and plant genetics magazines
Electronic References, Websites	- Websites concerned with genetic sciences

Course Description Form

1. Course Name:
English course
2. Course Code:
U014301
3. Semester / Year: Semester
Second semester / thirds year
4. Description Preparation Date:
2024/02/14
5. Available Attendance Forms:
The presence
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours / 2 units
7. Course administrator's name (mention all, if more than one name)
Name: Lafta Awad Atshan Email: lafta.awad@mu.edu.iq
8. Course Objectives

Course Objectives	Teaching students skills • Trying to employ the English language to serve the school curriculum •Teaching students skills that help them pass international language tests •Motivating students to research foreign sources
9. Teaching and Learning Strategies	
Strategy	Students are taught English language skills such as listening, readi writing, and grammar through available learning methods such as project in classrooms, homework, direct discussion methods, quick tests, and o and written exams.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Memorization,	Sentences strictures	The presence	Daily tests
2	2	understanding,	Past tense	The presence	Daily tests
3	2	practical application	Past simple	The presence	Daily tests
4	2	Memorization,	Past continuous	The presence	Daily tests
5	2	understanding,	Present tenses	The presence	Daily tests
6	2	practical application	Present Simple	The presence	Daily tests
7	2	Memorization,	Present continuous	The presence	Daily tests
8	2	understanding,	Future tense	The presence	Daily tests
9	2	practical application	Future simple	The presence	Daily tests
10	2	Memorization,	Paragraphs writing	The presence	Daily tests

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc
12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Cambridge English: Preliminary
Recommended books and references (scientific journals, reports...)	Cambridge English: Preliminary
Electronic References, Websites	An English videos

Course Description Form

1. Course Name:
Ecology
2. Course Code:
0014304
3. Semester / Year: Semester
First / third year
4. Description Preparation Date:
2024/02/14
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (30 theoretical + 30 practical) / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Saleh Shehab Sabah Email: saleh.sabah79@mu.edu.iq
8. Course Objectives

Course Objectives	1: Introducing the student to the most important environmental factors that affect a living organism and the extent of the impact . 2: This course aims to introduce the student to the concept of ecology - the departments of ecology, its various components, and the relationships between living organisms . 3: Knowing the economy of nature and monitoring the relationships of an animal through the organic and the inorganic
9. Teaching and Learning Strategies	
Strategy	Training students in a practical study of the characteristics of plant communities Identify different types of environments Learn about ecosystems, tropical forests, savannas, deserts, plains, Deciduous forests, cone forests, marshes. Training students to use and read environmental maps of different regions. Providing students with the basics and lectures related to the subject. Using point power presentation methods for the purpose of delivery The information is well and clear to the student. Urging students to go to the library by asking them to submit reports Scientific knowledge about the topics given to them from the academic subject.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorization, understanding, practical	A practical study on the characteristics of plant communities Sampling method and characteristics, natural food chain	The presence	Daily tests
2	4	Memorization, understanding, practical application	Learn about methods and devices for measuring lighting intensity	The presence	Daily tests

3	4	Memorization, understanding, practical application	Analysis of the effect of lighting on the vital activities of horticultural plants	The presence	Daily tests
4	4	Memorization, understanding, practical application	Conduct a study on the effect of lighting on the level of growth and elongation of horticultural plants	The presence	Daily tests
5	4	Memorization, understanding, practical application	Learn about methods and devices for measuring lighting intensity	The presence	Daily tests
6	4	Memorization, understanding, practical application	Water as an environment factor in plant life. Pictur of water in nature and ho plants are affected by it	The presence	Daily tests
7	4	Memorization, understanding, practical application	Dividing plants according their water needs, the effe of rain on the spread of plants	The presence	Daily tests
8	4	Memorization, understanding, practical application	Winds, their types, air masses and fronts, the eff of winds on plants	The presence	Daily tests
9	4	Memorization, understanding, practical application	Atmospheric pressure, factors that affect.	The presence	Daily tests
10	4	Memorization, understanding, practical application	atmospheric pressure, distribution of	The presence	Daily tests
11	4	Memorization, understanding, practical application	atmospheric pressure and circulation,	The presence	Daily tests
12	4	Memorization, understanding, practical application	main ranges of atmosphe pressure	The presence	Daily tests
13	4	Memorization, understanding, practical application	The climate of Iraq and i impact on the spread of desert plants	The presence	Daily tests
14	4	Memorization, understanding, practical application	Pollution, its types, plan reagents, the role of plants preserving the environme from pollution	The presence	Daily tests

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Ecology, physical factors, biological factors, pl environment, plants and their environments
Recommended books and references (scientific journals, reports...)	Hosting directors of weather station units in orde learn about measuring and reading weather conditi

	and how they will forecast for the coming days.
Electronic References, Websites	Simulating a method of protection from environmer extremes and ways, book Ecology Conce Applications, written by Manuel C Molles JR, fou edition.

Course Description Form

1. Course Name:
Plant Breeding and Improvement
2. Course Code:
0024305
3. Semester / Year: fourth
Second semester / third year / plant protection
4. Description Preparation Date: 2023-2024
2024/02/14
5. Available Attendance Forms:
In person
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (30 theoretical + 30 practical) / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Mohammed Hussein Noor Email: Mohammad.noor@mu.edu.iq
8. Course Objectives

Course Objective	1- Providing students with general information about analytical chemistry 2- Introducing students to ways to express concentrations and their types 3- Introducing students to strong and weak acids and bases 4- Explaining to students what Buffer's solutions are and their types, with examples 5- Introducing students to the definition of salts and their types, with theoretic examples
9. Teaching and Learning Strategies	
Strategy	Strategic teaching and learning methods Audio methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the student, with student's evaluation in class participation Conduct experiments.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorization, understanding, practical application	Plant Breeding and target of plant breeding	Lecture and discussion	Exams , reports, discussions Quizzes
2	4	Memorization, understanding, practical application	Pollination and fertilization	Lecture and discussion	Exams , reports, discussions
3	4	Memorization, understanding, practical application	Reproduction in plant	Lecture and discussion	Exams , reports, discussions
4	4	Memorization, understanding, practical application	Male sterility and self incompatibility	Lecture and discussion	Exams , reports, discussions
5	4	Memorization,	Genetic variation and	Lecture	Exams ,

		understanding, practical application	their relationships with plant breeding	and discussion	reports, discussions
6	4	Memorization, understanding, practical application	Important factors to determining gene action	Lecture and discussion	Exams , reports, discussions
7	4	Memorization, understanding, practical application	First Exams	Lecture and discussion	Exams , reports, discussions
8	4	Memorization, understanding, practical application	Estimation some of genetic Parameters	Lecture and discussion	Exams , reports, discussions
9	4	Memorization, understanding, practical application	Gene Frequancy	Lecture and discussion	Exams , reports, discussions
10	4	Memorization, understanding, practical application	Hybridization and hybrid cultivars	Lecture and discussion	Exams , reports, discussions
11	4	Memorization, understanding, practical application	Mutation Breeding	Lecture and discussion	Exams , reports, discussions
12	4	Memorization, understanding, practical application	Chromosomal polyploidy and relationships in plant breeding	Lecture and discussion	Exams , reports, discussions
13	4	Memorization, understanding, practical application	Breeding of self-pollination plants	Lecture and discussion	Exams , reports, discussions
14	4	Memorization, understanding, practical application	Breeding of cross pollination plants	Lecture and discussion	Exams , reports, discussions
15	4	Memorization, understanding, practical application	Second Exams	Lecture and discussion	

11.
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc
12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Plant Breeding and improvement, 2020. Dr. Fouad Razzaq Al-Burki.
Main references (sources)	From methodological books, help books, Internet, and scientific research
Recommended books and references (scientific	Iraqi Scientific journals in basic

journals, reports...)	specializations
Electronic References, Websites	Al-Muthanna University e-learning website https://agr.mu.edu.iq/

Course Description Form

1. Course Name:
Integrated pests management
2. Course Code:
0024406
3. Semester / Year:
Spring Semester / 2024
4. Description Preparation Date
2 / 4 / 2023
5. Available Attendance Forms:
Courses
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours / 2 units
7. Course administrator's name (mention all, if more than one name)
Name: Alaa Hussein Abed Email: alaahussein73@mu.edu.iq
8. Course Objectives

Course Objectives	1- Study the evolution of the thought of integrated management of pest control 2 Study the philosophy of integrated pest management 3-The importance of information in pest management 4-Knowledge of pest management and integrated control alternatives 5-Identify integrated pest management 6-Control Programs)
9. Teaching and Learning Strategies	
Strategy	A-Cognitive objectives A-1: Identify the integrated management of pest control A-2: Identify the philosophy and principles of integrated pest control A-3 - Information gathering and injury forecasting - Develop an integrated control program A-4 that the student mastered how to prevent the occurrence of diseases and control.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	**Save, understand, practical application**	**Definition of the Pest Control Department, brief history of the stages of its development**	**Lecture and discussion**	Oral tests
2	2	**Save, understand, practical application**	**The types of pests and losses they cause**	**Lecture and discussion**	Quick exam
3	2	**Save, understand, practical application**	**Basic elements of integrated manageme programs**	**Lecture and discussion**	Oral tests
4	2	**Save, understand, practical application**	**The role of sampling, surveillance, and continuous pest**	**Lecture and discussion**	Quick exam

			prediction programs		
5	2	**Save, understand, practical application**	**The role of chemical pesticides in pest management**	**Lecture and discussion**	Oral tests
6	2	**Save, understand, practical application**	**The role of plant resistance in pest management**	**Lecture and discussion**	Quick exam
7	2	**Save, understand, practical application**	**The use of parasites a insect predators**	**Lecture and discussion**	Written exam
8	2	**Save, understand, practical application**	**The role of behaviora resistance in pest management**	**Lecture and discussion**	Oral tests
9	2	**Save, understand, practical application**	**Rank straight wings. Half - wing rank.**	**Lecture and discussion**	Quick exam
10	2	**Save, understand, practical application**	**The role of resistance agricultural methods combating the pest**	**Lecture and discussion**	Oral tests
11	2	**Save, understand, practical application**	**The role of legislative resistance**	**Lecture and discussion**	Quick exam
12	2	**Save, understand, practical application**	**The role of physical a mechanical control**	**Lecture and discussion**	Oral tests
13	2	**Save, understand, practical application**	**Use water to control some pests**	**Lecture and discussion**	Quick exam
14	2	**Save, understand, practical application**	**Software design and u in integrated management progran**	**Lecture and discussion**	Oral tests
15	2	**Save, understand, practical application**	**Some successful examples of integrate pest management and future prospects.**	**Lecture and discussion**	Quick exam

11. Course Evaluation	
Daily exam ; 10 grades Daily activity ; 10 grades Homework ; 10 grades Reports ; 10 grades Monthly exam ; 60 grades	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**1. Integrated pest control / D. Eyad Yousef A Haj Ismail**
Main references (sources)	1- **Integrated pest control** / D. Mahmod Said Al-Zamity 2-Integrated management of Agricultural pests / D. Abed Al-star Arif Ali
Recommended books and references (scientific journals, reports...)	-Iraqi Agriculture Journal -Magazines dealing with beekeeping -Bulletins issued by agricultural companies
Electronic References, Websites	All agricultural magazine sites

Course Description Form

1. Course Name:

Professional Ethics

2. Course Code:

U024401

3. Semester / Year:

First semester/Fourth

4. Description Preparation Date:

2/14/2024

5. Available Attendance Forms:

Mandatory official working hours

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

15 hours Units 1

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

Name:
MOHAMD KHALEL IBRAHIM MOHAMED

Email: moh_kh15@mu.edu.iq

8. Course Objectives

Course Objectives	**The course aims to enhance the ethics of agricultural graduates from professional standpoint from several axes, the most important of which is religious and societal axis, given that ethics are something acquired fr childhood, in addition to linking these ethics to all work facilities (whet scientific or administrative) and the impact of the lack of a worker's mo sense on the continued development of countries. Due to the depletion economic resources through administrative or scientific fraud, which leads the failure of agricultural projects that may lead to disasters that lead to lives of citizens.**

9. Teaching and Learning Strategies

Strategy	**Cognitive objectives** **A1- Study the concept of professional ethics in its general, linguistic, and terminologic sense and the importance of those ethics.** **A2- Identify the history of ethical codes, their development, and their interrelationshi** **A3- List some of the moral disasters that occurred due to the lack of professional ethic** **B - The skills objectives of the course.** **B1 - Organize the work well and avoid chaos that does not lead to reaping its fruits.** **B2- Monitor work by providing a good supervision system.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**The concept of professional ethics**	**Practical lecture, discussion,**	**oral examinations**
second	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**Sources of professional ethics**	**Practical lecture and discussion**	**oral examinations**

third	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**Family and socialization Professional ethics**	**Practical lecture, discussion,**	**oral examinations**
fourth	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**Elements of professional ethics**	**Practical lecture and discussion**	**oral examinations**
Fifth	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**General components of professional ethics**	**examination**	**writing examinations**
Sixth	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**First test**	**Practical lecture, discussion,**	**oral examinations**
seventh	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**Means of establishing professional ethics**	**Practical lecture, discussion,**	**oral examinations**
Eighth	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**Role models Good deeds**	**Practical lecture and discussion**	**oral examinations**
Ninth	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**Challenges and their impact on internal professional ethics**	**Practical lecture, discussion,**	**oral examinations**
Tenth	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**Challenges and their impact on external professional ethics**	**Practical lecture and discussion**	**oral examinations**
Eleventh	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**Social responsibility (its concept, types, elements, and components)**	**Practical lecture, discussion,**	**oral examinations**
Twelfth	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**Elements of social responsibility**	**Practical lecture and discussion**	**oral examinations**
Thirteenth	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**Manifestations of poor social responsibility**	**Practical lecture, discussion,**	**oral examinations**
Fourteenth	**One hour**	**memorizing,**	**The basic**	**Practical**	**oral**

	theoretically	**understanding, analyzing, and applying**	**foundations of professional ethics**	**lecture and discussion**	**examinations**
fifteenth	**One hour theoretically**	**memorizing, understanding, analyzing, and applying**	**The second test**	**examination**	**writing examinations**

11. Course Evaluation	
Attendance 5 + exams and daily assignments 2 + reports 3 + written exam 40 = 50 quest + Final exam 50	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Professional ethics from an academic perspective, written by Dr. Salam Jassim Hammoud Al-Ardi and teacher Miqdad Jassim Abd
Main references (sources)	Lectures on professional ethics for Qamiha Publishing_Partie1
Recommended books and references (scientific journals, reports...)	Lessons in professional ethics.
Electronic References, Websites	Some of the global websites specialized in studying professional ethics in its academic form

Course Description Form

1. Course Name:
Acarology
2. Course Code:
0024402
3. Semester / Year:
Second semester / Fourth year
4. Description Preparation Date:
2024/02/14
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (30 theoretical + 30 practical) / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Ali Ajil Jassim Email: aliajil2005@mu.edu.iq
8. Course Objectives

Course Objectives	• Teaching the student about the types of mites that infect economic plants, domestic animals, and humans • Determine the economic significance of dream damage • Identify the different environmental factors and their impact on the spread of mites • Identify the mite hosts that infect plants in particular • The pathological symptoms it causes • Applying the best methods to combat diseases through methods (chemical, biological, integrated control programmes)
9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives 1- The student will learn about the diseases that affect orchids and th names. 2- Learn about the transmission of pathogens from one field to anot or the spread of the pathogen through the same field. 3- The student will learn how to prevent and control the occurrence diseases. 4- To be able to find solutions in cases of rapidly spreading epider diseases and ways to control them. 5- Identify quick ways to diagnose mite infestation of plants. 6- The student will be able to disseminate the information obtained control the pest. B - The skills objectives of the course. 1-The student will learn how to diagnose this lesion. 2- That the student will be able to treat mite infestations that aff various plants. 3- To be proficient in using pest control machines. 4- To be proficient in using modern and advanced methods of p control.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorization,	Acarology	Lecture and	Oral exams

		understanding, practical application		discussion	
2	4	Memorization, understanding, practical application	Taxonomic position of mites within the kingdom Arthropoda	Lecture and discussion	Oral exams
3	4	Memorization, understanding, practical application	The taxonomic position of the mite within the Acari-order and sub-order Mites	Lecture and discussion	Oral exams
4	4	Memorization, understanding, practical application	The economic importance of the dream	Lecture and discussion	Oral exams
5	4	Memorization, understanding, practical application	Methods of dispersal of mite families	Lecture and discussion	Oral exams
6	4	Memorization, understanding, practical application	The most important theories of silk spinning	Lecture and discussion	Oral exams
7	4	Memorization, understanding, practical application	Written exam	Lecture and discussion	Oral exams
8	4	Memorization, understanding, practical application	Habits and habitat	Lecture and discussion	Oral exams
9	4	Memorization, understanding, practical application	Reproduction in a dream	Lecture and discussion	Oral exams
10	4	Memorization, understanding, practical application	The external appearance of the dream	Lecture and discussion	Oral exams
11	4	Memorization, understanding, practical application	Various dream devices	Lecture and discussion	Oral exams
12	4	Memorization, understanding, practical application	Pest resistance to chemical pesticides	Lecture and discussion	Oral exams
13	4	Memorization, understanding, practical application	Anti-dream	Lecture and discussion	Oral exams
14	4	Memorization, understanding, practical application	Integrated crop management	Lecture and discussion	Oral exams
15	4	Memorization, understanding, practical application	Written exam	Lecture and discussion	Oral exams

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	.1Mice that are harmful to economic plants / Translated by Dr. Jalil Abu Al-Hob

	.2Non-insect animal pests
Main references (sources)	.1Non-insect animal pests / practical part .2Mice and ticks / Jobson
Recommended books and references (scientific journals, reports...)	-Iraqi Agriculture Journal -Magazines dealing with pests and pesticides -Bulletins issued by agricultural companies and pesticide companies
Electronic References, Websites	-All agricultural magazine sites and magazines dealing with mites and ticks

Course Description Form

1. Course Name:
Biological Control
2. Course Code:
0014401
3. Semester / Year:
Autumn Semester / 2024
4. Description Preparation Date
27 / 12 / 2023
5. Available Attendance Forms:
Courses
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Alaa Hussein Abed Email: alaahussein73@mu.edu.iq
8. Course Objectives

Course Objectives	• Study the evolution of the thought of biological control of insect pests • Study the philosophy of vital enemies • The importance of information in pest control • Knowledge of pest control methods and alternatives to integrated control • Identify the biological control • Identify the philosophy of biological control • Identify the life of vital enemies
9. Teaching and Learning Strategies	
Strategy	A-Cognitive objectives A-1: Identify the biological control A-2 - Identify the philosophy and principles of biological control A-3 - Information gathering and injury forecasting - Develop an integrated control program A-4 that the student mastered how to prevent the occurrence of diseases and control. A.5. Be able to find solutions in the case of epidemic epidemics and ways of controlling them. A-6 that the student acquires how to disseminate the information obtained in the control of insect pests.B- the skills objectives of the program; B- the skills objectives of the program; B - 1 - Students' knowledge of the biological control programs for each crop B-2 - Decision-making quickly to control pests B - 3 - access to the information network and know the talk in the fight against insect pests B - 4 - The use of modern technology in the prediction of infection and conduct appropriate control B - 5 - To master the use of modern methods and advanced contro
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Save, understand, practical applicatio	Introduction to the r of bio-resistance in plant protection	Lecture and discussion	Oral tests
2	4	Save, understand, practical applicatio	Procedures for introducing vital 1.enemies: Diagnosis of the lesion as an alien species. 2.Determine the original habitat of the pest. 3. External explorati of vital enemies.	Lecture and discussion	Quick exam
3	4	Save, understand, practical applicatio	Quarantine of imported models. education and mass propagation of vital enemies.	Lecture and discussion	Oral tests
4	4	Save, understand, practical applicatio	Final evaluation of vital enemies ((isolation and exclusion method, construction of life tables)).	Lecture and discussion	Quick exam
5	4	Save, understand, practical applicatio	mportant groups of insect parasites Ranks to which parasitic insects belong: -1Membranes of paranormal wings. Parasites of the wing type.	Lecture and discussion	Oral tests
6	4	Save, understand, practical applicatio	Incomplete phases of parasitic insects: Types of eggs	Lecture and discussion	Quick exam
7	4	Save, understand, practical applicatio	-Types of larval ages. - Important groups insect predators	Lecture and discussion	Written exan
8	4	Save, understand, practical applicatio	Ranks to which predatory insects belong: The rank of the May fly. The rank of shivers.	Lecture and discussion	Oral tests
9	5	Save, understand,	Rank straight	Lecture and	Quick exam

		practical applicatio	wings. Half - wing rank.	discussion	
10	4	Save, understand, practical applicatio	Rank of the wings. Rank with two wing	Lecture and discussion	Oral tests
11	4	Save, understand, practical applicatio	Rank of membranous wings. Rank of sheath wing	Lecture and discussion	Quick exam
12	4	Save, understand, practical applicatio	Pathogens: Types of bacteria a viruses in resistance insect pests	Lecture and discussion	Oral tests
13	4	Save, understand, practical applicatio	Types of pathogenic fungi	Lecture and discussion	Quick exam
14	4	Save, understand, practical applicatio	Types of insect pathogenic worms	Lecture and discussion	Oral tests
15	4	Save, understand, practical applicatio	Biological resistance the bush using insec	Lecture and discussion	Quick exam

11. Course Evaluation	
Daily exam ; 10 grades Daily activity ; 10 grades Homework ; 10 grades Reports ; 10 grades Monthly exam ; 60 grades	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1. Biological Control / D. Hamza Kadum Zubaidy
Main references (sources)	1-Biological control its philosop mechanism of Action and sustainability / D. Nazar Must Al-Malah 2-Biological control of Agricultural pests / D. Ahmad Hussien Al-Hinidy and D.Yahia Hussien Fiad
Recommended books and references (scientific journals, reports...)	-Iraqi Agriculture Journal -Magazines dealing with beekeeping -Bulletins issued by agricultural companies
Electronic References, Websites	All agricultural magazine sites

Course Description Form

1. Course Name:	
Field crop diseases	
2. Course Code:	
0014403	
3. Semester / Year:	
first semester / second year	
4. Description Preparation Date:	
2024 \2 \14	
5. Available Attendance Forms:	
my presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours (30 theoretical + 30 practical) / 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ali Faraj Jubair Email: alifj80@mu.edu.iq	
8. Course Objectives	
Course Objectives	• Introducing the student to the various types of diseases that affect field cr (fungal, bacterial, viral, nematode, and physiological). • Determine the economic importance of these diseases • Identify various environmental factors and their impact on the spread infectious plant diseases • Pathological symptoms caused by these diseases • Finding the best ways to combat diseases through methods (natural, appli mechanical, agricultural, biological, legislative, chemical, genetic, integra control programs)
9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives * The student should know the diseases that affect agricultural crops and their names. * To try to find out how pathogens are transmitted from one research to another or th causative spread through the same field. * The doctor must master how to prevent and control diseases. * Innovation to find solutions in cases of rapid epidemic diseases and control them. * Learn about modern methods of disease diagnosis and control. * The student must master how to disseminate the information obtained in disease surveillance.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorization, understanding, practical applicatio	Introduction to field crop diseases	Lecture and discussion	Oral exams
2	4	Memorization, understanding, practical applicatio	Wheat diseases	Lecture and discussion	Quick exam
3	4	Memorization, understanding, practical applicatio	Barley diseases	Lecture and discussion	Oral exams
4	4	Memorization, understanding, practical applicatio	Rice diseases	Lecture and discussion	Quick exam

5	4	Memorization, understanding, practical applicatio	Maize diseases	Lecture and discussion	Oral exams
6	4	Memorization, understanding, practical applicatio	Sorghum diseases	Lecture and discussion	Quick exam
7	4	Memorization, understanding, practical applicatio	Written exam	Written exam	Written exam
8	4	Memorization, understanding, practical applicatio	Bean diseases	Lecture and discussion	Oral exams
9	4	Memorization, understanding, practical applicatio	Diseases of oil crops)sunflower, safflower	Lecture and discussion	Quick exam
10	4	Memorization, understanding, practical applicatio	Diseases of oil crops (soybean, pistachio, sesame(	Lecture and discussion	Oral exams
11	4	Memorization, understanding, practical applicatio	Diseases of sugar cro	Lecture and discussion	Quick exam
12	4	Memorization, understanding, practical applicatio	Diseases of cotton an flax	Lecture and discussion	Oral exams
13	4	Memorization, understanding, practical applicatio	Diseases of forage cr	Lecture and discussion	Quick exam
14	4	Memorization, understanding, practical applicatio	Tobacco diseases	Lecture and discussion	Oral exams
15	4	Memorization, understanding, practical applicatio	Written exam	Written exam	Written exam

11. Course Evaluation

- Theoretical tests: (daily exams - monthly exams - oral exams)
- Practical tests: (daily exams - monthly exams - oral exams)
- Theoretical and practical reports
- Models for examination and practical experiments

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. The basics of fungi and their diseases / D Majeed Al-Shukri 2. Diseases of field crops / Dr. Maysar Zarzis
Main references (sources)	- Iraqi Agriculture Journal - Magazines dealing with diseases of all field crops - Bulletins issued by agricultural companies pesticide companies
Recommended books and references (scientific journals, reports...)	- All agricultural magazine sites and crop dise magazines
Electronic References, Websites	- world Wide Web

Course Description Form

1. Course Name:	
Pesticides	
2. Course Code:	
0014402	
3. Semester / Year:	
First semester/2023-2024	
4. Description Preparation Date:	
03/02/2024	
5. Available Attendance Forms:	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 Hours / Units 3	
7. Course administrator's name (mention all, if more than one name)	
Name: Malik hasan karem Email: malik.hasan@mu.edu.iq	
8. Course Objectives	
Course Objectives	1. Understanding the theoretical foundations: achieving a understanding of the chemical and biological basics of pesticides. 2. Environmental impact analysis: Understanding the effe of pesticides on the environment and how to reduce negat effects. 3. Health effects analysis: Understanding the health effect of the proper and improper use of pesticides and how to prevent risks. 4. Safe and effective use: Teaching students how to use pesticides in a safe and effective way and ensuring adherence to safety instructions. 5. Developing research skills: Motivating students to sear for modern and reliable information on the topic of chemi pesticides. 6. Promoting critical thinking: Encouraging students to th critically about the need and potential effects of pesticide use. 7. Promoting social participation: Supporting stude communication with pesticide issues and participating sustainable development solutions.
9. Teaching and Learning Strategies	
Strategy	1. Providing content: providing detailed information about the types of pesticides a their use clearly. 2. Practical interaction: Encouraging students to experiment with using pesticides in safe way, which enhances their practical understanding of the subject. 3. Discussion: Encouraging students to discuss the environmental and health impact of excessive use of pesticides and stimulating critical thinking. 4. Include recent information about research and developments in the field of chemi pesticides. 5. Directing students to conduct research on the use of pesticides and their effects, which enhances research and analysis skills. 6. Encouraging students to participate in class discussions and exchange experience on the topic of chemical pesticides.

	7. Using technology, such as videos and simulations, to illustrate chemical processe and the effects of pesticides. Provide periodic evaluation of students' progress and ensure their corr understanding of the content.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorization, understanding, practical application	Agricultural pests, the damage they cause, and the economic critical limit	Lecture, discussio and oral examinations	oral examinat
2	4	Memorization, understanding, practical application	Pesticides, definition of pesticı The pros and cons of pesticides historical review of the use of pesticides.	Lecture, discussio and oral examinations	quiz
3	4	Memorization, understanding, practical application	Points to be followed during chemical control.	Lecture, discussio and oral examinationsNs	Oral exam
4	4	Memorization, understanding, practical application	Toxicology, acute toxicity, chr toxicity, pesticide fading.	Lecture, discussio and oral examinationsNs	quiz
5	4	Memorization, understanding, practical application	Metabolism of chemical pesticides, metabolic enzymes, general methods of metabolism		Oral exam
6	4	Memorization, understanding, practical application	Classification of pesticides, bas of classification according to p toxicity, method of action, forn of preparation and the role of additives in activating or inhibi pesticides.	Lecture, discussio and oral examinationsNs	quiz
7	4	Memorization, understanding, practical application	Systemic pesticides.	Lecture, discussio and oral examinationsNs	Exam
8	4	Memorization, understanding, practical	Absorption and transfer of chemical pesticides and factors affecting this.	Lecture, discussio and oral	quiz

9	4	Memorization, understanding, practical application	Insecticides, inorganic pesticid natural organic pesticides (plan and oils), organochlorine pesticides, organophosphorus pesticides, carbamate pesticide pyrethroid pesticides, neonicotinoid pesticides, and chemicals that inhibit insect reproduction....	examinationsNs Lecture, discussio and oral examinationsNs	Oral exam
10	4	Memorization, understanding, practical application	Insect growth regulators.	examinationsNs Lecture, discussio and oral examinationsNs	quiz
11	4	Memorization, understanding, practical application	Fungicides	examinationsNs Lecture, discussio and oral examinationsNs	Oral exam
12	4	Memorization, understanding, practical application	Weedicides	examinationsNs Lecture, discussio and oral examinationsN	quiz
13	4	Memorization, understanding, practical application	Rodenticides	examinationsNs Lecture, discussio and oral examinationsN	Oral exam
14	4	Memorization, understanding, practical application	Nematicides.	examinationsNs Lecture, discussio and oral examinationsN	quiz
15	4	Memorization, understanding, practical application	Mite pesticides.	examinationsNs Lecture, discussio and oral examinationsN	Exam

11. Course Evaluation

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.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	يدات الكيميائية/د. نزار مصطفى الملاح/2012
Main references (sources)	-الاسس النظرية و التطبيقية لمبيدات الافات/د. نزار مصطفى الملاح/2012. Chemical pesticides mode of action
Recommended books and references (scientific journals, reports...)	• ب/ الاستخدام الامن و الفعال للمبيدات/ د. باتريك مايرر. الات مكافحة الافات/ د. اشرف كامل زعلوك
Electronic References, Websites	موقع وزارة الزراعة العراقية/ دليل المبيدات

Course Description Form

1. Course Name:
Plant viruses
2. Course Code:
0024403
3. Semester / Year:
Second semester/2023-2024
4. Description Preparation Date:
03/02/2024
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
60 Hours / 3 Units
7. Course administrator's name (mention all, if more than one name)
Name: Malik hasan karem Email: malik.hasan@mu.edu.iq
8. Course Objectives

Course Objectives	
9. Teaching and Learning Strategies	
Strategy	PowerPoint presentation via the Data show screen Direct delivery method and detailed explanation By showing illustrative films.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorization, understanding, practical application	overview of the gr evolution of virology	Lecture, discuss and examinations	oral examinations
2	4	Memorization, understanding, practical application	The most import characteristics t distinguish viruses fr microorganisms a other organisms	Lecture, discuss and examinations	quiz
3	4	Memorization, understanding, practical application	The econor importance of v plant diseases	Lecture, discuss and examinationsNs	Oral exam

4	4	Memorization, understanding, practical application	Naming and classify viruses	Lecture, discuss and examinationsNs	quiz
5	4	Memorization, understanding, practical application	Chemical structure viruses		Oral exam
6	4	Memorization, understanding, practical application	Morphological characteristics viruses	Lecture, discuss and examinationsNs	quiz
7	4	Memorization, understanding, practical application	Virus infecti movement, transmission wit plant tissues	Lecture, discuss and examinationsNs	Exam
8	4	Memorization, understanding, practical	Viruses multiply	Lecture, discuss and oral	quiz
9	4	Memorization, understanding, practical application	Mixed infection w viruses and their eff on plants	examinationsNs Lecture, discuss and examinationsNs	Oral exam
10	4	Memorization, understanding, practical application	Symptoms of viral pl diseases: exter internal, and enclo bodies	examinationsNs Lecture, discuss and examinationsNs	quiz
11	4	Memorization, understanding, practical application	Methods transmission and spr of plant viruses	examinationsNs Lecture, discuss and examinationsNs	Oral exam

12	4	Memorization, understanding, practical application	Virus diagnosis	examinationsNs Lecture, discuss and examinationsN	quiz
13	4	Memorization, understanding, practical application	Resistance to v diseases	examinationsNs Lecture, discuss and examinationsN	Oral exam
14	4	Memorization, understanding, practical application	The most import viruses that inf vegetable crops	examinationsNs Lecture, discuss and examinationsN	quiz
15	4	Memorization, understanding, practical application	The most important viruses that infect vegetable crops	examinationsNs Lecture, discuss and examinationsN	Exam

11. Course Evaluation	
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.	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	كتاب فايروسات النبات/د. نبيل عزيز قاسم 2011. Introduction plant virology/ D.P. tripathi Characterization of plant viruses/Alan Ishwara and Govind pratap.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	www.NCBI.com WWW.ICOPV.com

Course Description Form

1. Course Name:

English

2. Course Code:

U024402

3. Semester / Year:

Semester 2\ 4

4. Description Preparation Date:

4/3/2024

5. Available Attendance Forms:

Attendance

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

30 h/ 2 units

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

Name: Dr. Saleh Shehab Sabah
Email: saleh.sabah79@mu.edu.iq

8. Course Objectives

Course Objectives	**• Teaching students English language skills** **• Trying to employ the English language to serve the school curriculum** **• Teaching students skills that help them pass international language tests** **• Motivating students to research foreign sources** **• Serving final stage students by using the English language to write research papers for graduation projects** **• Giving students the opportunity to learn to visit the websites of scientific journals and famous research platforms**

9. Teaching and Learning Strategies

Strategy	Students are taught English language skills such as listening, reading, writing, and grammar through available learning methods such as projectors in classrooms, homework assignments, direct discussion methods, quick tests, oral and written exams, and various means of testing such as multiple choice tests and other skills, following up on students' writings in the daily preparation journal, and correcting errors. Spelling in it, with students distributed in the form of groups that deal with writing and preparing agricultural reports to develop academic writing skills.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Identify types of sentences	types of sentences	Presence	Daily test
second	2	Identify parts of speech	parts of speech	Presence	Daily test
third	2	Recognizing names	names	Presence	Daily test
fourth	2	Identify the functions of	functions of nouns	Presence	Daily test

		nouns			
Fifth	2	Identify pronouns	pronouns	Presence	Daily test
Sixth	2	Identify traits	traits	Presence	Daily test
Seventh	2	Recognize the situation	situation	Presence	Daily test
Eighth	2	Recognizing the passive voice	passive voice	Presence	Daily test
Ninth	2	Learn about the simple present	simple present	Presence	Daily test
Tenth	2	present perfect	present perfect	Presence	Daily test
Elevent	2	Learn about the present continuous tense	present continuous tense	Presence	Daily test
Twelves	2	Identify the types of questions	types of questions	Presence	Daily test
Thirteen	2	Identify conditional sentences	conditional sentences	Presence	Daily test
fourteen	2	Learn about ownership	ownership	Presence	Daily test
Fifteent	2	Identify phrasal verbs with off	phrasal verbs with off	Presence	Daily test

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Internet
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://Pinterest.com

Course Description Form

1. Course Name:

Insects Ecology

2. Course Code:

0024405

3. Semester / Year:

Spring course \ 4

4. Description Preparation Date:2024/2/2

2 \2\ 2024

5. Available Attendance Forms: weekly lecture schedule

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

60 Hours \ 3 Units

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

Name: Ahmed Shamkhi Jabbar
Email: ahmedshmky65@mu.edu.iq

8. Course Objectives

Course Objectives	• **Understand the concept of the environment in general and lea about the relationship of ecology to other sciences** • **Identify the environmental factors affecting insects and th numbers, and learn about the ability of insects to adapt unfavorable conditions** • **Identify the possibility of benefiting from the environment controlling insects**

9. Teaching and Learning Strategies

Strategy	**1 - Presentation of PowerPoint via the Data show screen** **2 - Observing and following up on the environment of insects through field reality and raising insects in the laboratory and exposing them to various environmental factors to determine the degree of their influence and study the interrelationship.** **3 - Direct delivery method and detailed explanation**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorization, understanding, pract application	Introduction: - Ecolo methods for study ecology, steps studying insect ecolo	Lecture, discuss and examinations	oral examinations
2	4	Memorization, understanding, pract application	Department Ecology,Insect Ecology, Definitions	Lecture, discuss and examinations	quiz

3	4	Memorization, understanding, pract application	Factors that hel insects spread	Lecture, discuss and examinationsNs	Oral exam
4	4	Memorization, understanding, pract application	Biopotential factors insect	Lecture, discuss and examinationsNs	quiz
5	4	Memorization, understanding, pract application	Sexual factors in inse		Oral exam
6	4	Memorization, understanding, pract application	Nutritional efficie and protective factor insects	Lecture, discuss and examinationsNs	quiz
7	4	Memorization, understanding, pract application	Survival efficie factors in insect	Lecture, discuss and examinationsNs	Exam
8	4	Memorization, understanding, practica	Natural balance insects	Lecture, discuss and oral	quiz
9	4	Memorization, understanding, pract application	Abiotic fact (environmental resistance factors s as temperature humidity	examinationsNs Lecture, discuss and examinationsNs	Oral exam
10	4	Memorization, understanding, pract application	Wind, atmosph pressure, and moonli	examinationsNs Lecture, discuss and examinationsNs	quiz
11	4	Memorization, understanding, pract application	Food, competition biotic enemies insects	examinationsNs Lecture, discuss and examinationsNs	Oral exam
12	4	Memorization, understanding, pract application	Competition betw individuals of the sa species	examinationsNs Lecture, discuss and examinations	quiz
13	4	Memorization, understanding, pract application	Competition betw different species biological enem ies	examinationsNs Lecture, discuss and examinations	Oral exam

14	4	Memorization, understanding, pract application	Design programs use them in con program	examinationsNs Lecture, discuss and examinationsN	quiz
15	4	Memorization, understanding, pract application	exam	examinationsNs Lecture, discuss and examinationsN	Exam

11. Course Evaluation
A theoretical monthly exam of 30 marks, divided into 25 marks, a written exam and 5 marks distributed between the daily and oral exams and reports, and a practical exam of 20 marks divided into 15 marks for the monthly exam and 5 marks distributed as in the theoretical exam.

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Books available for free
Main references (sources)	-Ecology of Insects/Concepts and
Recommended books and references (scientific journals, reports...)	- Journals / insect ecology - Bulletins issued by agricultu companies
Electronic References, Websites	- All Arab and international agricultu journal websites published in English

Course Description Form

1. Course Name:
sustainable development
2. Course Code:
U014402
3. Semester / Year:
Chapter Two/Four
3. Description Preparation Date:
4. Available Attendance Forms:
Actual presence
5. Number of Credit Hours (Total) / Number of Units (Total)
30 Hours units 2
6. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Saad Mnee Enad Email: **saad_manee@mu.edu.iq**

7. Course Objectives	
Course Objectives	For the student to know the types of analytical methods • The student learns how to analysis water , soil and plant • The student should evaluate the scientific reality to maintain analytical methods

8. Teaching and Learning Strategies	
Strategy	1- Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

9. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
The first	2	The student gets to know introduction about water , soil plant analytical	Water , soil a plant analytica	Explanation , presentation of the model and lecture	the exam

The second	2	is for the student to know analytical of water	l		
Third	2	The student learns about soil analytical	Water soil plant analytic	Explanation , presentation of the model and lecture	the exam
Fourth	2	The student gets to know plant analytical	Water soil plant analytic	Explanation , presentation of the model and lecture	the exam
Fifth	2	: The student learns about methods of soil samples	Water soil plant analytic	Explanation , presentation of the model and lecture	the exam
Sixth	2	: The student learns about methods of plant samples	Water , soil and plant analytical	Explanation , presentation of the model and lecture	the exam
Seventh	2	: The student gets to know the methods of water samples methods	Water soil plant analytic	Explanation , presentation of the model and lecture	the exam
Eighth	2	The student gets to know the quantitative and volumetric methods	Water soil plant analytic	Explanation , presentation of the model and lecture	the exam
Ninth	2	The student gets	Water	Explanation	the exam

		to know the quantitative and weighing methods	soil plant analytic	, presentation of the model and lecture	
Tenth	2	: The student will learn about electrical of a Analytical methods	Water soil plant analytic	Explanation , presentation of the model and lecture	the exam
Eleventh Twelfth	2	The student gets to know About analytical of spectroscopy The student gets to know Atomic emission methods	Water soil plant analytic	Explanation , presentation of the model and lecture	the exam the exam
thirteenth	2	: The student knows how the Atomic absorption methods	Water soil plant analytic	Explanation , presentation of the model and lecture	the exam
Fourteenth	2	: The student gets to know Metal analysis methods	Water soil plant analytic	Explanation , presentation of the model and lecture	the exam
Fifteenth	2	The student gets to know the types of X-ray analysis methods	Water soil plant analytic	Explanation , presentation of the model and lecture	the exam

10. Course Evaluation	
Theoretical tests 40 2- Practical tests - 3- Reports and studies 10 4- Final exam 50	
11. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific	Iraqi academic scientific journals

journals, reports...)	
Electronic References, Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

1. Course Name:

Store pests

2. Course Code:

0014405

3. Semester / Year:

First/fourth

4. Description Preparation Date:

27 \ 2\ 2024

5. Available Attendance Forms:

The presence

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

60 hours/3 units

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

Name: Dr. Khalid Jaber AbdelRazzaq
Email: : khadry.ahmed@mu.edu.iq

8. Course Objectives

Course Objectives	**1- Identify the types of pests that affect stored grains.** **2- Identify methods of controlling storage pests.** **3- Collecting information about storage pest control programs.** **4- The student must master how to confront epidemic cases of stored pests and methods of combating them.** **5- To be able to find solutions in the event that grains are infected w storage pests.**

9. Teaching and Learning Strategies

Strategy	1 - Presentation of PowerPoint via the Data show screen 2 - Identify and diagnose lesions that affect grains through the use of optical and anatomical microscopes 3 - Direct delivery method and detailed explanation 4 - Through presentation of slides and illustrative slides.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Memorize,understan	Common methods of storing grains in Iraq	Lecture and discussion	Written test
2	4	analysis	Signs of damage to sto grains due to their infect with types of wareho pests	Lecture and discussion	Written test
3	4	Memorize,understar	Direct and indirect dam to grains as a result of th infestation with wareho insects and comparing th to field insect damage	Lecture and discussion	Written test

			grains in the field.		
4	4	analysis	Groups of insects of sto materials and their ba divisions.	Lecture a discussion	Written tes
5	4	Memorize,understar	Ecology and adaptation warehouse insects, and study of so environmental factors a their relationship warehouse insects.	Lecture a discussion	Written tes
6	4	analysis	Nutritional preference grain insects and sto materials and its m important indicators in warehouse environment	Lecture a discussion	Written tes
7	4	Memorize,understar	Methods of controll warehouse insects general	Lecture a discussion	Written tes
8	4	analysis	Traditional methods a their types, natural a mechanical cont biological methods a chemical methods us fumigants and th common types of cont mentioning their ic characteristics.	Lecture a discussion	Written tes
9	4	Memorize,understar	Suitable conditions for growth of warehouse fu and the most import types of fu accompanying grains a stored materials	Lecture a discussion	Written tes
10	4	analysis	Damage caused by fung warehouses and the m important types mycotoxins common grain stores infected w the common types of fu that produce them. Ty of grain bacteria and sto materials prevalent in gr stores	Lecture a discussion	Written tes
11	4	Memorize,understar	Mites of stored materia types, methods of detect the infestation of sto materials by mites, a methods of con followed	Lecture a discussion	Written tes
12	4	analysis	The most common types rodents in grain sto	Lecture a discussion	Written tes

			damage caused by m and rats		
13	4	Memorize,understar	Chemical methods used combat mice and rats	Lecture a discussion	Written tes
14	4	analysis	The most important ty of poisons used in cont non-chemical means control	Lecture a discussion	Written tes
15	4	Memorize,understar	Birds harmful to grains warehouses, their m important types, th importance from agricultural point of vi their most important har and the types of con methods used against the	Lecture a discussion	Written tes

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**Storage pests\D. Iyad Ismail Al-Jamal**
Main references (sources)	
Recommended books and references (scientific journals, reports...)	All magazine of Insects
Electronic References, Websites	Web. Internet

Course Description Form

1. Course Name:

Orchard insects

2. Course Code:

0024404

3. Semester / Year:

second/fourth

4. Description Preparation Date:

20/2/2024

5. Available Attendance Forms:

The presence

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

60 Hours \ 3 Units

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

Name: Dr. Khali Jaber Abdulrazaq
Email: ahmed@mu.edu.iq

8. Course Objectives

Course Objectives	**1-The student learns about the most important insects that infect orchards** **2-The student learns about the most important insects that infect vegetables** **3-The student learned about the most important insects that infect greenhouse plants** **4-Learn about the critical economic limit and the beginning of p control.**

9. Teaching and Learning Strategies

Strategy	**1-Sudden daily and continuous weekly tests** **2-Exercises and activities in the classroom** **3- Directing students to some websites**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	**4**	**Memorization, understanding, analysis**	The most important dam caused by insects to plants	**Lecture a discussion**	Written tests
2	**4**	**Memorization, understanding, analys**	Methods of controll agricultural pests	**Lecture a discussion**	Written tests
3	**4**	**Memorization, understanding, analys**	The concept of econor Threshold	**Lecture a discussion**	Written tests
4	**4**	**Memorization, understanding, analys**	The most important pests t affect palm trees	**Lecture a discussion**	Written tests
5	**4**	**Memorization, understanding, analys**	Termite insect	**Lecture a discussion**	Written tests
6	**4**	**Memorization, understanding, analys**	General harmful insects.	**Lecture a discussion**	Written tests
7	**4**	**Memorization,**	The most important pests	**Lecture a**	Written tests

		understanding, analys	grapes	**discussion**	
8	**4**	**Memorization, understanding, analys**	The most important pests citrus	**Lecture a discussion**	Written tests
9	**4**	**Memorization, understanding, analys**	Pests of the cruciferous family	**Lecture a discussion**	Written tests
10	**4**	**Memorization, understanding, analys**	Pests of the legume family	**Lecture a discussion**	Written tests
11	**4**	**Memorization, understanding, analys**	Pests of the Apiaceae famil	**Lecture a discussion**	Written tests
12	**4**	**Memorization, understanding, analys**	Pests of the lily family	**Lecture a discussion**	Written tests
13	**4**	**Memorization, understanding, analys**	Pests of olives and figs	**Lecture a discussion**	Written tests
14	**4**	**Memorization, understanding, analys**	Narcissistic family lesions	**Lecture a discussion**	Written tests
15	**4**	**Memorization, understanding, analys**	Pomegranate pests	**Lecture a discussion**	Written tests

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Orchard insects
Main references (sources)	All magazines and periodicals that
Recommended books and references (scientific journals, reports...)	Dealing with insects
Electronic References, Websites	Orchard insects\Dr. Iyad Ismail

Course Description Form

1. Course Name:
Crop Insects
2. Course Code:
0014406
3. Semester / Year: 2024
First Semester \ fourth
4. Description Preparation Date:
2/2/2024
5. Available Attendance Forms:
Lecturer's schedule
6. Number of Credit Hours (Total) / Number of Units (Total)
60 Hours \ 3 Units
7. Course administrator's name (mention all, if more than one name)
Name: Ahmed Shamkhi Jabbar Email: ahmedshmky65@mu.edu.iq
8. Course Objectives

Course Objectives	A1- Learn about the concept of plant diseases and insect infection and methods of diagnosing them A2- Learn about ways to combat these diseases and other agricultural pests and methods of preventing them A3- Learn about the concept of integrated management to control the threat of agricultural pests A4- Identify the nature of the damage and losses in agricultural production caused by these pests A5- Identifying the reasons for the infestation of fields with these biotic or abiotic pathogens A6-Describe the life cycle of pathogens and insects that infect fie and identify the harmful source of infection

9. Teaching and Learning Strategies

Strategy	B1 - Knowing the concept of plant protection, especially infection resulting from biological causes B2 - Enabling students to diagnose infected plants and the possibi of isolating and diagnosing the causative pathogens B3 - The student's ability to estimate the economic critical limit

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	2 theoretical and 2 practical	Preserving understanc g, analyzir and applyi	Preserving, understanding, analyzing, and applying the introduction and historical overview of field crop insect and their economic importan Classes of the arthrop division, medical damage a its phenotypic characteristic	Preserving, understandi analyzing, , lecture and	discussion oral exams

2	2 theoretical and 2 practical	Preserving, understandi analyzing, applying	The most important insects w general damage or multi-fam insects: 1- The ground 2- Locusts 3- Carob The nature of damage phenotypic characteristics the most important multi-fam insects	lecture discussion,	oral exams
3	2 theoretical and 2 practical		The most important insects grain crops (insects of the Poaceae family, such as whe barley, corn, and rice) The nature of damage phenotypic characteristics the most important insects cereal crops (insects of Poaceae family such as wh and barley)	lecture discussion,	Quiz
4	2 theoretical and 2 practical		The most important insects o forage crops (insects of the legume family): The nature of damage phenotypic characteristics the most important insects grain crops (insects of Poaceae family such as c and rice)	lecture discussion	Oral exam
5	2 theoretic and 2 practical		The most important insects o industrial crops (sugar beet insects) The nature of damage phenotypic characteristics of most important insects of for crops (insects of the legumin family such as jet and clover)	lecture discussion	
6	2 theoretic and 2 practical		Theoretical test 1. Practical test 1.	lecture discussion	Exam
7	2 theoretic and 2 prac al		The most important insects o industrial crops (tobacco insects) The nature of the damage the most important phenoty characteristics of the m important insects of sugar be and tobacco	lecture discussion	Oral exam

8	2 theoretic and 2 prac a		The most important insects o industrial crops (safflower insects) The most important dama and appearance characteris of safflower insects	lecture discussion	Oral exam
9	2 theoretic and 2 prac a		The most important insects o industrial crops (sunflower insects) The most important dama and phenotypic characteris of sunflower insects	lecture discussion	Oral exam
10	2 theoretic and 2 prac a		The most important insects o industrial crops (cotton insect 1) The most important dama and phenotypic characteris of cotton insects: 1	lecture discussion	Oral exam
11	2 theoretic and 2 prac a		The most important insects o industrial crops (cotton insect 2) The most important dama and phenotypic characteris of cotton insects2	lecture discussion	
12	2 theoretic and 2 prac a		The most important pathoger that infect field crops The most important dama and phenotypic characteris of acrosis	lecture discussion	Oral exam
13	2 theoretic and 2 prac a		Applied control of econor insects 1 How to cond applied control 1	lecture discussion	
14	2 theoretic and 2 practical		Applied control of economic insects 2 How to conduct applied con 2	lecture discussion	Oral exam
15	2 theoretic and 2 practical		Theoretical test 1. Practical test 1.	lecture discussion	exam

11. Course Evaluation
A theoretical monthly exam of 30 marks, divided into 25 marks, a written exam and 5 marks distributed between the daily and oral exams and reports, and a practical exam of 20 marks divided into 15 marks for the monthly exam and 5 marks distributed as in the theoretical exam.
12. Learning and Teaching Resources

Required textbooks (curricular books	Haj Ismail, Iyad Youssef and Bar

any)	Rakan Dabdoub (2009). Insects of fi crops, the theoretical part.
Main references (sources)	1- Al-Azzawi, Abdullah Falih, Ibrahim Qaddouri Qaddo, and Haider Saleh Al-Haidari (1990) Economic Insects. Dar A Hekma Printing and Publishing Press. 2- Jarjis, Salem Jamil, Hamza Kazem Abis, and Muhammad Abdel Karim Muhammad (2000) Insects of field crop Dar Al-Kutub for Printing and Publishir University of Mosul. 3- Al-Hajj Ismail, Iyad Youssef, a Banan Rakan Dabdoub (2009). Field c insects, the theoretical part.
Recommended books and references (scientific journals, reports...)	Bailey, P. T. 2007. Pests of Field Cr and Pastures. Csiro Publishing, pp. 520.
Electronic References, Websites	Field crop insect pest from North Dakota State University. http://www.ext.nodak.edu/expubs/bugcrops.htm. - Agricultural crop pest IPM at University of California. http://www.ipm.ucdavis.edu/PMG/crops-agriculture.html. - Key to insect and allied pest of field pest, Agriculture Western Australia. http://www.agric.wa.gov.au/

Course Description Form

1. Course Name:					
Vegetables diseases					
2. Course Code:					
0014404					
3. Semester / Year:					
First semester / fourth year					
4. Description Preparation Date:					
2024/02/14					
5. Available Attendance Forms:					
Presence					
6. Number of Credit Hours (Total) / Number of Units (Total)					
60 hours (30 theoretical + 30 practical) / 3 units					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Ali Ajil Jassim Email: aliajil2005@mu.edu.iq					
8. Course Objectives					
Course Objectives	• Introducing the student to the various types of diseases that affect plants (fungal, bacterial, viral, nematode, and physiological). • Determine the economic importance of these diseases • Identify various environmental factors and their impact on the spread of infectious plant diseases • Pathological symptoms caused by these diseases • Finding the best ways to combat diseases through methods (natural, applied, mechanical, agricultural, biological, legislative, chemical, genetic, integrated control programs)				
9. Teaching and Learning Strategies					
Strategy	A- Cognitive objectives * The student gets to know the diseases that affect plants and their names. * To try to find out how pathogens are transmitted from one field to another or how the pathogen spreads through the same field. * The student must master how to prevent and control the occurrence of diseases. * To be able to find solutions in cases of rapidly spreading epidemic diseases and ways to control them. * Learn about modern methods of disease diagnosis and control. * The student must master how to disseminate the information obtained in disease control. B - The skills objectives of the course. * The student must master how to diagnose these diseases. * The student will be able to treat diseases that affect plants * To be proficient in using disease control machines. * To be proficient in using modern and advanced methods of pest control.				
10. Course Structure					
Week	Hours	Required	Unit or subject	Learning	Evaluation

		Learning Outcomes	name	method	method
1	4	Memorization, understanding, practical application	Nursery diseases	Lecture and discussion	Oral exams
2	4	Memorization, understanding, practical application	Diseases of the Solanaceae family	Lecture and discussion	Quick exam
3	4	Memorization, understanding, practical application	Eggplant diseases	Lecture and discussion	Oral exams
4	4	Memorization, understanding, practical application	Tomato diseases	Lecture and discussion	Quick exam
5	4	Memorization, understanding, practical application	Potato diseases	Lecture and discussion	Oral exams
6	4	Memorization, understanding, practical application	Diseases of the cucurbit	Lecture and discussion	Quick exam
7	4	Memorization, understanding, practical application	Diseases of the cruciferous	Written exam	Written exam
8	4	Memorization, understanding, practical application	Diseases of the Compistae	Lecture and discussion	Oral exams
9	4	Memorization, understanding, practical application	Diseases of the legume	Lecture and discussion	Quick exam
10	4	Memorization, understanding, practical application	Diseases of the legumes	Lecture and discussion	Oral exams
11	4	Memorization, understanding, practical application	Diseases of the lily	Lecture and discussion	Quick exam
12	4	Memorization, understanding, practical application	Diseases of the Malviacea	Lecture and discussion	Oral exams
13	4	Memorization,	Compound	Lecture and	Quick exam

		understanding, practical application	diseases	discussion	
14	4	Memorization, understanding, practical application	Storage diseases	Lecture and discussion	Oral exams
15	4	Memorization, understanding, practical application	Monthly Exam	Written exam	Written exam

11. Course Evaluation	
- Theoretical tests: (daily exams - monthly exams - oral exams) - Practical tests: (daily exams - monthly exams - oral exams) - Theoretical and practical reports - Models for examination and practical experiments	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if an	1. Orchard and vegetables diseases / Dr. Samer Michael
Main references (sources)	- Iraqi Agriculture Journal - Journals dealing with diseases of all field crops - Bulletins issued by agricultural companies and pesticide companies
Recommended books and references (scientific journals, reports...)	- All agricultural sites and crop disease journals
Electronic References, Websites	- World Wide Web