

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

Academic Program Description Form

University Name: Wasit
Faculty/Institute: Agriculture
Scientific Department: Plant Protection
Academic or Professional Program Name: Plant Protection
Final Certificate Name: Plant Protection
Academic System: Quarterly
Description Preparation Date: 2/11/2025
File Completion Date: 10/3/2026

Signature: 
جامعة واسط كلية الزراعة
قسم وقاية النباتات

Head of Department Name: Dr. Hasan Hadi Faraj
Date: 10/3/2026

Signature: 

Scientific Associate Name:

W. Sami Al-Muhammar
Date: 10/3/2025
معاون التعليم لمؤتمر التعليم والدراسات العليا

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 10/3/2026 Hibat Allah A. Hussein

Signature: 


Assist. Prof.
Dr. Hakeem S. Abed
Dean
Approval of the Dean

Introduction:

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

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

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

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

Concepts and terminology:

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

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

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

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

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

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

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

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

1. Program Vision
Plant protection department providing distinguished education and advanced scientific research in the field of crop protection, contributing to improving the quality and safety of field crops, and supporting the use of safe and affordable methods through qualified graduates and innovative applied research. • To provide high-quality education that equips students with the scientific knowledge and practical skills necessary for work in pest and disease control, research, and public service. • To promote scientific research in the fields of insect pest control, treatment, preservation, and biotechnology to address current and future challenges in pest control systems. • To enhance collaboration with industry, government, and communities to ensure the development of safe, nutritious, and sustainable crops. • To foster innovation, critical thinking, and lifelong learning among students and plant protection professionals.
2. Program Mission
The Department of Plant Protection is an important and multidisciplinary field, combining chemistry, biology, and engineering to understand the nature of food and methods for treating and controlling diseases and harmful insects. The program focuses on innovative methods in the field of plant protection against various insects and diseases, from control technologies and quality assurance to consumer behavior and food safety. This specialization attracts students with diverse interests; for some, the applied scientific aspect appeals to them, while others see it as a step toward specializing in the development of control methods. All students have the opportunity to transfer to specialized programs in the field of plant protection, which they can benefit from in the future.
3. Program Objectives
1. Promoting education on citizenship, belonging to the homeland, and preserving its institutions. 2. Providing students with appropriate experience in teaching methods, techniques, and skills. 3. Developing the performance and creative abilities of students in the linguistic, educational, cognitive, artistic and technical aspects. 4. 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.
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	7	9	%7.08	Principal
College Requirements	11	34	%26.77	Principal
Department Requirements	24	84	%66.14	Principal
Summer Training				Principal
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Third year/first semester		Fungi1	2	3
Third year/first semester		Ecology	2	3
Third year/first semester		Insect physiology	2	3
Third year/first semester		Genetics	2	3
Third year/first semester		Design and analysis of experiments	2	3
Third year/first semester		Biochemistry	2	3
Third year/second semester		Plant diseases	2	3
Third year/second semester		Nematode	2	3
Third year/second semester		Honey bees	2	3
Third year/second semester		Fungi 2	2	3
Third year/second semester		Biotechnology	2	3
Third year/second semester		Weeds and control	2	3
Third year/second semester		Plant breeding	2	3
Fourth year/first semester		Crop diseases	2	3
Fourth year/first semester		Vegetable diseases	2	3
Fourth year/first semester		Insect environment	2	3
Fourth year/first semester		Store pests	2	3
Fourth year/first semester		Pesticides	2	3
Fourth year/first semester		Biological control	2	3

Fourth year/first semester		Seminars	2	3
Fourth year/second semester		Fruit diseases	2	3
Fourth year/second semester		Integrated pest management	2	3
Fourth year/second semester		Viruses	2	3
Fourth year/second semester		Acarology	2	3
Fourth year/second semester		Graduation research project	2	3
Fourth year/second semester		Crop insects	2	3
Fourth year/second semester		Orchard insects	2	3

8. Expected learning outcomes of the program	
Knowledge	
- Teaching students the theoretical and practical foundations for diagnosing plant pests and the methods that must be followed to reduce their economic damage - Teaching students the management methods used in various plant protection projects and alternatives in management methods in a way that ensures communication with the global development in technologies and the needs of the labor market. - Teaching students the correct standards and knowledge of the actual need for chemical pesticides and other means and methods of control in a way that ensures the safety of the plant and achieves the best production at the lowest cost. - Teaching students and guiding them to the educational and behavioral aspects in a way that directs the educational institution's outputs in building a generation of graduates who carry the principles of noble values that reject the methods of societal corruption of all kinds.	1 Graduation of an agricultural engineer specializing in plant protection, capable of solving all the problems facing farmers of vegetables and field crops, whether they are insects or other pathogens. 2- Taking advantage of modern information to solve problems affecting the plant using the best solutions that are compatible with the market need 3- Graduating a conscious generation with high values and good morals to improve the agricultural situation in Iraq
Skills	
- Providing the opportunity for practical performance to acquire practical skills in field dealing in crop protection projects -Training students on the use of various laboratory equipment to ensure the availability of skill in using scientific techniques in managing plant protection projects.	- Investing the practical experience that the student received as a result of direct dealing with insects and diseases in practical lessons in solving emerging problems in the field of production and protecting plants from infection. -The possibility of working in the private

Ensuring that students are trained in methods of communicating new information in the field of specialization to develop information, skills, and methods of communicating information to the team participating in the management of plant pests through training in formulating and giving lectures. - Training students to complete the scientific research stage by applying the sections of the scientific method in research and preparing the student to work in research and development centers or complete His higher studies	and government sectors in specialized laboratories related to plant protection, private laboratories in the Ministry of Agriculture, or other laboratories. - Investing in the training skills of students in agricultural directorates for the purpose of developing their capabilities in the actual agricultural situation - Producing a conscious and educated generation capable of supplying the scientific competencies in the academic program to meet its need for the required specializations.
Learning Outcomes 3	Learning Outcomes Statement 3
Ethics	
-The academic program adopted educational values in dealing with students to cultivate the desire and interaction among students to seek knowledge and seek to spread scientific benefit to society through mastering the work in completing it. - Stirring students' ambition for achievement and excellence, developing self-confidence, the potential of youth, and the need of society. To this human potential in construction - Focusing on the importance of fair competition in the development and prosperity of projects, and that the arena for success is open to those who are diligent and honest in working and winning markets for their products by adopting the quality - Spreading the importance of the individual's contribution to society and not relying on the efforts of others in order to avoid the emergence of a class of unemployed within the group that hides under the achievements of the persistent and creative members of the group. - Spreading the culture of purifying society and providing good advice to avoid the reflection of honoring distinguished students to focus the spotlight on role models Good behavior: The disgraceful act of a few that harms the reputation and dignity of a good society	Learning Outcomes Statement 4

9. Teaching and Learning Strategies

Teaching and learning strategies and methods adopted in implementing the program in general
 - Using the method of delivering information through the lecture, using the blackboard, a data display device, an interactive lecture, and displaying an educational video that provides the opportunity to watch field or laboratory operations.

- Participation of students in obtaining information by asking them to submit scientific reports on specific paragraphs of the curriculum, which ensures the expansion of the student's cognitive ability and training him on means of accessing modern information for his future information.

- Training students in the method of logical discussion to reach results, as well as the method of deduction

- Training students on educational commitment to behavior inside the lecture hall, in the laboratory, field, or greenhouses, ensuring the prevalence of sound behavior in the educational institution and after graduation.

- Learning through applied field practices and providing students with the opportunity to apply knowledge in the field

10. Evaluation methods

Monthly exams

Daily exams

Practical exams

The final exam has both theoretical and practical parts

To evaluate during summer training in government departments and submit a report

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Plant protection	Plant diseases			1	
Professor	Plant protection	Insects			1	
Assist. Professor	Plant protection	Insects			1	
Assist. Professor	Plant protection	Microbiology			1	
Assist. Professor	Plant protection	Plant diseases			1	
Lecturer	Food	Human			1	

	industry	nutrition				
Lecturer	Teaching methods	Research			1	
Assist. Lecturer	Plant protection	Plant diseases			1	
Assist. Lecturer	Biology	Zoology			1	

Professional Development
Mentoring new faculty members
Developing the self-development of new and full-time faculty members by urging them to participate in courses, attend seminars, conferences, and discussion panels, and conduct studies and research in their field of specialization, which will raise their academic level and work within the group effectively and actively, such as introducing them to teaching methods courses to teach them.
Professional development of faculty members
Developing the administrative, professional, and academic skills of faculty members, such as working in a team effectively and actively, and decision-making skills in academic and administrative work, such as introducing them to teaching methods courses and developing English language and computer skills.

12. Acceptance Criterion
Central admission

13. The most important sources of information about the program
The college and university website University guide the central Library -They are the department's books and resources The Internet

14. Program Development Plan
- Students, especially the top ones in their scientific departments, outside Iraq, especially in developed countries. 2- To develop each person's skills according to his desire and according to the specializations in the scientific department. 3- Cooperation between Iraqi universities and international universities by sending teaching staff to international universities 4- Developing the idea of a visiting professor to provide universities with expertise and the latest findings of science in agricultural fields. 5- Cooperation between Iraqi universities and other universities through discussion with

postgraduate students

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.

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
Negotiation and persuasion, meaning the student's ability to persuade others and discuss to reach an agreement.

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
Third		Biotechnology	Basic				✓				✓				✓
Third		Insect physiology	Basic				✓				✓				✓
Third		Nematodes	Basic				✓				✓				✓
Third		Bees breeding	Basic				✓				✓				✓
Third		Design and analysis of experiments	Basic				✓				✓				✓
Third		Mycology II	Basic				✓				✓				✓
Third		Plant diseases (Plant pathology)	Basic				✓				✓				✓
Third		Weed control	Basic				✓				✓				✓
Third		Biochemistry	Basic				✓				✓				✓
Third		Plant genetics	Basic				✓				✓				✓
Third		English	Basic				✓				✓				✓
Third		Plant Breeding and Improvement	Basic				✓				✓				✓

Third		Ecology	Basic				✓				✓				✓
Fourth		Integrated pests management	Basic				✓				✓				✓
Fourth		Professional Ethics	Basic				✓				✓				✓
Fourth		Biological Control	Basic				✓				✓				✓
Fourth		Field crop diseases	Basic				✓				✓				✓
Fourth		Pesticides	Basic				✓				✓				✓
Fourth		Plant viruses	Basic				✓				✓				✓
Fourth		English	Basic				✓				✓				✓
Fourth		Insects Ecology	Basic				✓				✓				✓
Fourth		sustainable development	Basic				✓				✓				✓
Fourth		Store pests	Basic				✓				✓				✓
Fourth		Orchard insects	Basic				✓				✓				✓
Fourth		Crop Insects	Basic				✓				✓				✓
Fourth		Vegetables diseases	Basic				✓				✓				✓
Fourth		Acarology	Basic				✓				✓				✓

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

Course Description Form

1. Course Name:					
Biotechnology					
2. Course Code:					
3. Semester / Year:					
Second semester / third year					
4. Description Preparation Date:					
1/3/2026					
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. Jawadayn Talib+ Dr. Nada Mohammed					
Email: jalkooranee@uowasit.edu.iq					
8. Course Objectives					
Course Objective	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 t 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 Outcome s	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, reportsetc					
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:					
3. Semester / Year:					
First semester /Third					
4. Description Preparation Date:					
1/3/2026					
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. Hussnian Taher Kareem					
Email: halhachami@uowasit.edu.iq					
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, understand. 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, reportsetc

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:					
3. Semester / Year: 2024					
Second semester / third year					
4. Description Preparation Date:					
1/3/2026					
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: Noor Kadhim Kareem+ Dr Sabreen Hadi					
Email: noorkadim@uowasit.edu.iq					
8. Course Objectives					
Course Objectives	- Identify nematode diseases that affect plants and their life cycle - Knowing how to isolate and diagnose nematodes in the laboratory - Knowing the appropriate methods to combat caecilians, whether using agricultural or natural methods, using biological or chemical methods, or using resistant varieties. - Identify the role of nematodes as vectors of viral and bacterial 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 and field visits to the fields, using illustrative images and videos related to the scientific subject, as well as searching the Internet to solve the questions 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 nematode	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, any)	Books available
Main references (sources)	- Abu Gharbia, Walid Ibrahim, Ahmed Saad Al-Hazmi, Zuhair Aziz Estefan and Ahmed Abdel Samie Dawab (2010). Plant Nematodes in Arab Countries (Parts One Two), Dar Wael for Publishing and Distribution, 824 pages. - Al-Hazmi, Ahmed Saad (2009). Introduction to plant nematology. Scientific Publishing and Press, King Saud University, Kingdom of Saudi Arabia, 440 pages. - Sharif, Fayyad Muhammad (2012). Nematode disease plants and primary animals. Al-Dhakra Publishing and Distribution, Baghdad, Iraq, 248 pages. - Othman, Ahmed Ahmed (2008) The World of Nematodes: The Problem - The Solution. Arab Publishing and Distribution House, Cairo, Arab Republic of Egypt, 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 websites published in English

Course Description Form

1. Course Name:					
Bees breeding					
2. Course Code:					
3. Semester / Year:					
Second Semester / 2024					
4. Description Preparation Date					
1/3/2026					
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. Hussinan Taher					
Email: halhachami@uowasit.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 that 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, 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:					
3. Semester / Year:					
First semester / third year					
4. Description Preparation Date:					
1/3/2026					
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. Riydh Jabber Monsoor + Salam Hamed					
Email: ralmaliki@uowasit.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 st * 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 th 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, understanding, practical application	Measures of central tendency, measures of centralization	Lecture and discussion	Quick exam
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 experiment s,	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, p understanding, practical application	lit-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-Ra and Khalfulla, 2000		
Main references (sources)					
Recommended books and references (scientific journals, reports...)			-Books specialized in designing agricultural experiments		
Electronic References, Websites			Articles published by academic and professional journals		

Course Description Form

1. Course Name:					
Mycology II					
2. Course Code:					
3. Semester / Year:					
the second semester / third year					
4. Description Preparation Date:					
1/3/2026					
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. Azher Hamed+ Noor Kadhm Kareem					
Email: aaltaie@uowasit.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 (chemical 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 variou 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 et al 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:					
3. Semester / Year:					
Second semester / third year					
4. Description Preparation Date:					
1/3/2026					
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. Azher Hamed + Noor Kadhm Kareem					
Email: aaltaie@uowasit.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 from 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 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.
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	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:					
3. Semester / Year:					
Second semester / third year					
4. Description Preparation Date:					
1/3/2026					
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.Hasan Hadi Faraj+ Saja Intasir Email: hasanfaraj@uowasit.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 Name:					
Plant genetics					
2. Course Code:					
3. Semester / Year:					
First semester/ Third					
4. Description Preparation Date:					
1/3/2026					
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. Jawadayn Talib+ Nada Mohammed Email: jalkooranee@uowasit.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:					
Ecology					
2. Course Code:					
3. Semester / Year: Semester					
First / third year					
4. Description Preparation Date:					
1/3/2026					
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. Hussianan Taher Email: halhachami@uowasit.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 environmental factor in plant life. Pictures of water in nature and how plants are affected by it	The presence	Daily tests
7	4	Memorization, understanding, practical application	Dividing plants according to their water needs, the effect of rain on the spread of plants	The	Daily tests
8	4	Memorization, understanding, practical application	Winds, their types, air masses and fronts, the effect 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 atmospheric pressure	The presence	Daily tests
13	4	Memorization, understanding, practical application	The climate of Iraq and its impact on the spread of desert plants	The presence	Daily tests
14	4	Memorization, understanding, practical application	Pollution, its types, plant reagents, the role of plants in preserving the environment from pollution	The	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, plant environment, plants and their environments
Recommended books and references (scientific journals, reports...)	Hosting directors of weather station units in order to learn about measuring and reading weather conditions

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

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Course Description Form

1. Course Name:					
Plant Breeding and Improvement					
2. Course Code:					
3. Semester / Year: fourth					
Second semester / third year / plant protection					
4. Description Preparation Date: 2023-2024					
1/3/2026					
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. Riydh Jabber Monsoor+ Salam Hamed					
Email: ralmaliki@uowasit.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 Frequency	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, reportsetc					
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:					
3. Semester / Year:					
Spring Semester / 2024					
4. Description Preparation Date					
1/3/2026					
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: Dr. Amer Jasem Email: aabbod@uowasit.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 management 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		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 in integrated management program	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 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:					
Acarology					
2. Course Code:					
3. Semester / Year:					
Second semester / Fourth year					
4. Description Preparation Date:					
1/3/2026					
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. Hasan Hadi Faraj+ Farah Nather Email: hasanfaraj@uowasit.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 t 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 epide 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 dread	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 dread	Lecture and discussion	Oral exams
10	4	Memorization, understanding, practical application	The external appearance of the dread	Lecture and discussion	Oral exams
11	4	Memorization, understanding, practical application	Various dread 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-dread	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, reportsetc					
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:	
3. Semester / Year:	
Autumn Semester / 2024	
4. Description Preparation Date	
1/3/2026	
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: Dr. Amer Jasem+ Dr. Sabreen Hadi Email: aabbod@uowasit.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 win 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 exam
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 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 resistanc the bush using inse	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 philoso 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:					
3. Semester / Year:					
first semester / second year					
4. Description Preparation Date:					
1/3/2026					
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. Azher Hamed+ Noor Kadhim					
Email: aaltaie@uowasit.edu.iq					
8. Course Objectives					
Course Objectives		- Introducing the student to the various types of diseases that affect field crops (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 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 their 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 application	Introduction to field crop diseases	Lecture and discussion	Oral exams
2	4	Memorization, understanding, practical application	Wheat diseases	Lecture and discussion	Quick exam
3	4	Memorization, understanding, practical application	Barley diseases	Lecture and discussion	Oral exams
4	4	Memorization, understanding, practical application	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:	
3. Semester / Year:	
First semester/ fourth	
4. Description Preparation Date:	
1/3/2026	
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: Dr. Amer Jasem Email: aabbod@uowasit.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 effects of pesticides on the environment and how to reduce negative effects. 3. Health effects analysis: Understanding the health effects 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 search for modern and reliable information on the topic of chemical pesticides. 6. Promoting critical thinking: Encouraging students to think critically about the need and potential effects of pesticide use. 7. Promoting social participation: Supporting student communication with pesticide issues and participating in sustainable development solutions.
9. Teaching and Learning Strategies	
Strategy	1. Providing content: providing detailed information about the types of pesticides and their use clearly. 2. Practical interaction: Encouraging students to experiment with using pesticides in a 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 chemical 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 processes and the effects of pesticides. Provide periodic evaluation of students' progress and ensure their comprehension and 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, discussion and oral examinations	oral examination
2	4	Memorization, understanding, practical application	Pesticides, definition of pesticides. The pros and cons of pesticides historical review of the use of pesticides.	Lecture, discussion and oral examinations	quiz
3	4	Memorization, understanding, practical application	Points to be followed during chemical control.	Lecture, discussion and oral examinations Ns	Oral exam
4	4	Memorization, understanding, practical application	Toxicology, acute toxicity, chronic toxicity, pesticide fading.	Lecture, discussion and oral examinations Ns	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, basis of classification according to toxicity, method of action, form of preparation and the role of additives in activating or inhibiting pesticides.	Lecture, discussion and oral examinations Ns	quiz
7	4	Memorization, understanding, practical application	Systemic pesticides.	Lecture, discussion and oral examinations Ns	Exam

8	4	Memorization, understanding, practical	Absorption and transfer of chemical pesticides and factors affecting this.	Lecture, discussion and oral	quiz
9	4	Memorization, understanding, practical application	Insecticides, inorganic pesticide natural organic pesticides (plant and oils), organochlorine pesticides, organophosphorus pesticides, carbamate pesticide pyrethroid pesticides, neonicotinoid pesticides, and chemicals that inhibit insect reproduction....	examinationsN s Lecture, discussion and oral examinationsN s	Oral exam
10	4	Memorization, understanding, practical application	Insect growth regulators.	examinationsN s Lecture, discussion and oral examinationsN s	quiz
11	4	Memorization, understanding, practical application	Fungicides	examinationsN s Lecture, discussion and oral examinationsN s	Oral exam
12	4	Memorization, understanding, practical application	Weedicides	examinationsN s Lecture, discussion and oral examinationsN s	quiz
13	4	Memorization, understanding, practical application	Rodenticides	examinationsN s Lecture, discussion and oral examinationsN s	Oral exam
14	4	Memorization, understanding, practical application	Nematicides.	examinationsN s Lecture, discussion and oral examinationsN s	quiz
15	4	Memorization, understanding, practical application	Mite pesticides.	examinationsN s Lecture, discussion and oral examinationsN s	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)	- Chemical pesticides mode of action
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:					
Plant viruses					
2. Course Code:					
3. Semester / Year:					
Second semester/2023-2024					
4. Description Preparation Date:					
1/3/2026					
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: Dr. Jawadayan Talib+ Dr. Nada Mohammed Email: jalkooranee@uowasit.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 g evolution of virology	Lecture, discuss and examinations	oral xaminations
2	4	Memorization, understanding, practical application	The most import characteristics distinguish viruses fr microorganisms other organisms	Lecture, discuss and examinations	quiz
3	4	Memorization, understanding, practical application	The econo 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 infection with movement, transmission 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 viruses and their effect on plants	examinationsNs Lecture, discuss and examinationsNs	Oral exam
10	4	Memorization, understanding, practical application	Symptoms of viral diseases: external, internal, and enclosed bodies	examinationsNs Lecture, discuss and examinationsNs	quiz
11	4	Memorization, understanding, practical application	Methods transmission and spread 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 impor viruses that in 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)	Introduction plant -virology/ 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:					
Insects Ecology					
2. Course Code:					
3. Semester / Year:					
Spring course \ 4					
4. Description Preparation Date:2024/2/2					
1/3/2026					
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: Dr. Hussinen Taher Kareem Email: halhachami@uowasit.edu.iq					
8. Course Objectives					
Course Objectives		- Understand the concept of the environment in general and le 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 th 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 xaminations
2	4	Memorization, understanding, pract application	Department Ecology, Insect Ecology, Definitions	Lecture, discuss and examinations	quiz

3	4	Memorization, understanding, practical application	Factors that help insects spread	Lecture, discussion and examinations	Oral exam
4	4	Memorization, understanding, practical application	Biopotential factors in insect	Lecture, discussion and examinations	quiz
5	4	Memorization, understanding, practical application	Sexual factors in insect		Oral exam
6	4	Memorization, understanding, practical application	Nutritional efficiency and protective factors in insects	Lecture, discussion and examinations	quiz
7	4	Memorization, understanding, practical application	Survival efficiency factors in insect	Lecture, discussion and examinations	Exam
8	4	Memorization, understanding, practical application	Natural balance in insects	Lecture, discussion and oral	quiz
9	4	Memorization, understanding, practical application	Abiotic factors (environmental resistance factors such as temperature humidity)	examinations Lecture, discussion and examinations	Oral exam
10	4	Memorization, understanding, practical application	Wind, atmospheric pressure, and moonlight	examinations Lecture, discussion and examinations	quiz
11	4	Memorization, understanding, practical application	Food, competition, biotic enemies in insects	examinations Lecture, discussion and examinations	Oral exam
12	4	Memorization, understanding, practical application	Competition between individuals of the same species	examinations Lecture, discussion and examinations	quiz
13	4	Memorization, understanding, practical application	Competition between different species, biological enemies	examinations Lecture, discussion and examinations	Oral exam

14	4	Memorization, understanding, practical application	Design programs use them in con program	examinationsNs Lecture, discuss and examinationsN	quiz
15	4	Memorization, understanding, practical 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 agricult companies
Electronic References, Websites	- All Arab and international agricult journal websites published in English

Course Description Form

1. Course Name:					
Store pests					
2. Course Code:					
3. Semester / Year:					
First/fourth					
4. Description Preparation Date:					
1/3/2026					
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. Hasan Hadi Faraj + Saja Intaser Email: hasanfaraj@uowsit.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,understa	Direct and indirect dam to grains as a result of t 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 stored materials and their biological divisions.	Lecture discussion	Written test
5	4	Memorize,understand	Ecology and adaptation of warehouse insects, and study of social environmental factors their relationship warehouse insects.	Lecture discussion	Written test
6	4	analysis	Nutritional preference grain insects and stored materials and its most important indicators in warehouse environment	Lecture discussion	Written test
7	4	Memorize,understand	Methods of controlling warehouse insects general	Lecture discussion	Written test
8	4	analysis	Traditional methods their types, natural mechanical control biological methods chemical methods use fumigants and the common types of control mentioning their individual characteristics.	Lecture discussion	Written test
9	4	Memorize,understand	Suitable conditions for growth of warehouse fungi and the most important types of fungi accompanying grains stored materials	Lecture discussion	Written test
10	4	analysis	Damage caused by fungi warehouses and the most important types mycotoxins common grain stores infected with the common types of fungi that produce them. Types of grain bacteria and stored materials prevalent in grain stores	Lecture discussion	Written test
11	4	Memorize,understand	Mites of stored materials types, methods of detecting the infestation of stored materials by mites, methods of control followed	Lecture discussion	Written test
12	4	analysis	The most common types of rodents in grain stores	Lecture discussion	Written test

			damage caused by m and rats		
13	4	Memorize,understa	Chemical methods used combat mice and rats	Lecture discussion	a Written tes
14	4	analysis	The most important ty of poisons used in cont non-chemical means control	Lecture discussion	a Written tes
15	4	Memorize,understa	Birds harmful to grains warehouses, their m important types, t importance from agricultural point of vi their most important har and the types of con methods used against the	Lecture discussion	a 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:	
3. Semester / Year:	
second/fourth	
Description Preparation Date:	
1/3/2026	
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)	
8. Name: Dr. Amer Jasem+ Dr. Sabreen Hadi Email: aabboud@uowasit.edu.iq	
9. 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
10. Teaching and Learning Strategy	and Learning Strategies 1-Sudden daily and continuous weekly tests 2- Exercises and activities in the classroom 3- Directing students to some websites
11. 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 test
2	4	Memorization, understanding, analy	Methods of controll agricultural pests	Lecture a discussion	Written test
3	4	Memorization, understanding, analy	The concept of econo Threshold	Lecture a discussion	Written test
4	4	Memorization, understanding, analy	The most important pests t affect palm trees	Lecture a discussion	Written test
5	4	Memorization, understanding, analy	Termite insect	Lecture a discussion	Written test
6	4	Memorization, understanding, analy	General harmful insects.	Lecture a discussion	Written test
7	4	Memorization,	The most important pests	Lecture a	Written test

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

1. 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, reportsetc

2. 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:					
3. Semester / Year: 2024					
First Semester \ fourth					
4. Description Preparation Date:					
1/3/2026					
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: Dr. Hussnian Taher + Farah Nather Email: halhachami@uowasit.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 fields 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 possibility 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 understanding, analyzing and applying	Preserving, understanding, analyzing, and applying the introduction and historical overview of field crop insect and their economic importance Classes of the arthropod division, medical damage and its phenotypic characteristics	Preserving, understanding, analyzing, , lecture and	discussion oral exam

2	2 theoretical and 2 practical	Preserving, understanding, 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 wh 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 pral		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 theoretical and 2 practical		The most important insects of industrial crops (safflower insects) The most important damage and appearance characteristics of safflower insects	lecture discussion	Oral exam
9	2 theoretical and 2 practical		The most important insects of industrial crops (sunflower insects) The most important damage and phenotypic characteristics of sunflower insects	lecture discussion	Oral exam
10	2 theoretical and 2 practical		The most important insects of industrial crops (cotton insect 1) The most important damage and phenotypic characteristics of cotton insects: 1	lecture discussion	Oral exam
11	2 theoretical and 2 practical		The most important insects of industrial crops (cotton insect 2) The most important damage and phenotypic characteristics of cotton insects: 2	lecture discussion	
12	2 theoretical and 2 practical		The most important pathogens that infect field crops The most important damage and phenotypic characteristics of acrosis	lecture discussion	Oral exam
13	2 theoretical and 2 practical		Applied control of economic insects 1 How to conduct applied control 1	lecture discussion	
14	2 theoretical and 2 practical		Applied control of economic insects 2 How to conduct applied control 2	lecture discussion	Oral exam
15	2 theoretical 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 Ba					

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 Publishi University of Mosul. 3- Al-Hajj Ismail, Iyad Youssef, 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:					
3. Semester / Year:					
First semester / fourth year					
4. Description Preparation Date:					
1/3/2026					
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. Azher Hamed+ Noor Kadhim Email: aaltaie@uowasit.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 any)			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		