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

Description of the academic program Plant Protection Department

2025

Academic Program Description Form

University Name: Wasit.....
Faculty/Institute: ....Agriculture.....
Scientific Department: ....Plant Protection.....
Academic or Professional Program Name: Plant Protection
Final Certificate Name: ... BSc. in Agriculture.....
Academic System: ... Semester .....
Description Preparation Date: 1/9/2024
File Completion Date: 10/9/2024

Signature:
Head of Department Name:
Dr. Hasan Hadi Faraj
Date: 10/9/2024

Signature:
Scientific Associate Name:
Assist. Prof
Jawadayn Talib Abed
Dean Assitsant for Scientific Affairs
Date: 10/9/2024

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Date: 1/9/2024
Signature:

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

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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	
			theoretical	practical
Second year/first semester		Plant classification	2	3
Second year/first semester		Plant physiology	2	3
Second year/first semester		Microbiology	2	3
Second year/first semester		Agricultural	2	–
Second year/first semester		Principles of statistics	2	3
Second year/first semester		Computer	2	–
Second year/first semester		Animal production	2	3
Second year/first semester		Field crops	2	3
Second year/first semester		Baath Party crimes	1	–
Second year/second semester		Medical and veterinary insects	2	3
Second year/second semester		Plant nutrition	2	3
Second year/second semester		Agricultural machines and machinery	2	3
Second year/second semester		Classification of insects	2	3
Second year/second semester		analytical chemistry	2	3
Second year/second semester		English language	2	–
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.	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

– 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.	
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. 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	- 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 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	Learning Outcomes Statement 4

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	

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 industry	Human nutrition			1	
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

Professional Development

13. The most important sources of information about the program

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

Guide books and other resources in the free education unit and the college and university library.

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.

14. Program Development Plan

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

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Second Second		Statistics	Basic				✔				✔				✔
		Medical and veterinary entomology	Basic				✔				✔				✔
Second		Agricultural machinery and equipment	Basic				✔				✔				✔

Second		Plant physiology	Basic				✔				✔				✔
Second		Insect taxonomy	Basic				✔				✔				✔
Second		English	Basic				✔				✔				✔
Second		Basics of field crops	Basic				✔				✔				✔
Second		Principles of animal production	Basic				✔				✔				✔
Second		analytical chemistry	Basic				✔				✔				✔
Second		Plant nutrition	Basic				✔				✔				✔
Second		Computer applications 2	Basic				✔				✔				✔
Second		Microbiology	Basic				✔				✔				✔
Second		Plant classification	Basic				✔				✔				✔
Second		Agricultural guidance	Basic				✔				✔				✔

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:
Computer 2
2. Course Code:
3. Semester / Year:
Second / First Semester
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms:
Actual presence
6. Number of Credit Hours (Total) / Number of Units (Total)
30 Hours Number of Units 2
7. Course administrator's name (mention all, if more than one name)
Name: Assist. Prof.Huda Laftaa Email: hulafta@uowasit.edu.iq
8. Course Objectives

Course Objecti	• The student gets to know computer fundamentals in details. • The student should know advantages of using computer device and main parts of this de in real life. • The student should apply many commends and processes on windows 7.
9. Teaching and Learning Strategies	
Strategy	1- Explanation and clarification. 2- Practical lessons. 3- Self-learning method.

10. Course Structure

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

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

11. Course Evaluation

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

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:
General plant basics
2. Course Code:
3. Semester / Year:
Second- First semester
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms:
Attend
6. Number of Credit Hours (Total) / Number of Units (Total)
75 Hours Number of Units 3
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Ali Hashim Email: alhashim@uowasit.edu.iq

8. Course Objectives

Course Objectives	• Researches general botany on the principles adopted in plant styling and the applie fields of botany and the relationships between plants • It includes knowledge of the different plant organs through which the general plant be developed • Knowing the vegetative and reproductive characteristics and their importance in general plants • Methods used in general plants • Study the evolutionary importance of reproductive organs • Study of monocotyledonous and dicotyledonous plants

9. Teaching and Learning Strategies

Strategies	Ask students inferential questions Establishing training programs Finding solutions to the problems and obstacles that students encounter in th practical part Enabling students to find solutions and applications for crisis situations

10. Course Structure

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

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

11. Course Evaluation

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

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:
English language
2. Course Code:
3. Semester / Year:
The first stage/ first semester
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms:
Presence
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours. Number of units: 2
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Suhad Kareem Email: skareem@uowasit.edu.iq
8. Course Objectives

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

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

10. Course Structure

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

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

11. Co2urse Evaluation

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

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:
Statistics
2. Course Code:
3. Semester / Year:
Spring Semester / secondary
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms:
In a present way
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Hasa Hadi Faraj Email: hasanfarj@uowasit.edu.iq

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

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

10. Course Structure

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

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

11. Course Evaluation

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

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:
Medical and veterinary entomology
2. Course Code:
3. Semester / Year:
First semester/second year
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms:
present way
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Qais Murri Email: khmurri@uowasit.edu.iq

8. Course Objectives

Course Objectives	• **The student will acquire cognitive skills about the concepts of the relationship insects to human and animal health, an introduction to the science of medica entomology, methods of transmitting pathogens, the medical importance of th orders of cockroaches, lice, dipteras, spiders, bedbugs and fleas and methods combating them, toxic pests and their relationship to environmental health. .** • **Also know the classification of medicinal insects according to their importance humans and animals and according to the type of host on which they feed** • • **Knowing the Arabic name of medical insect pests, scientific name, family, ord economic importance, and life cycle** • • **In addition to studying all insects that infect humans and animals** • • **Identify the harmful phase and symptoms and signs of infection**

9. Teaching and Learning Strategies

Strategy	Strategy A - Cognitive objectives A1- Learn about the concept of medical insects and methods diagnosing them A2- Learn about ways to combat these insects and methods preventing them A3- Learn about the concept of medical entomology and controlling the danger of these insects to public health A4- Learn about the nature of the damage and losses caused medical insects in the general environment and what these insects cause to public health

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

10. Course Structure

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

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

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

11. Course Evaluation

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

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name: Agricultural machinery and equipment
2. Course Code:
3. Semester 2 / Year: second
4. Description Preparation Date: 1/9/2024
5. Available Attendance Forms: present way
6. Number of Credit Hours (60) / Number of Units (3)
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Ahmed Abed Gatea Email: agatea@uowasit.edu.iq

8. Course Objectives	
Course Objectives	• Identify the types and parts of pullers • Types of combustion engines and methods mechanical transmission • Types of methods of operating and connecting equipment and how to maintai and maintain it

9. Teaching and Learning Strategies	
Strategy	• Explaining the importance of using mechanization in providing and achieving high levels of production • Explaining the modern and advanced method of agriculture through agricultural machinery

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	memorizing, understanding, analyzing, and applying	Classification of tractors , Mechanical transmission methods	Theoretical + practical lecture	test
2	4	memorizing, understanding, analyzing, and applying	Internal combustion engine parts	Theoretical + practical lecture	test
3	4	memorizing, understanding, analyzing, and applying	Four – stroke cycle& Two – stroke cycle	Theoretical + practical lecture	test
4	4	memorizing, understanding, analyzing, and applying	Timer devices	Theoretical + practical lecture	test
5	4	memorizing, understanding, analyzing, and applying	Clutch Device	Theoretical + practical lecture	test

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

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Agricultural machinery
Main references (sources)	• Field crop mechanization equipment. Written by Lotfi Hussein and Dr. Abdel Salam Mahmoud • For pullers and protective equipment. Written by Lotfi Hussein Basic Farm Machinery .J.M.shippen,C.R.Ellin and C.H.Clover
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Plant physiology
2. Course Code:
3. Semester / Year:
the first Semester / second year
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms:
Present way
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Nabil Raheem Email: nraheem@uowasit.edu.iq

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

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

10. Course Structure

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

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

11. Course Evaluation

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

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name: Plant nutrition

2. Course Code:

3. Semester / Year:

Second / Second year

4. Description Preparation Date:

1/9/2024

5. Available Attendance Forms:

Present way

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

60 hours / 3 Units

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

Name: Dr. Ahmed shaker
Email: ahshaker@uowasit.edu.iq

8. Course Objectives

Course Objectives	• Introduction to plant nutrition • Explanation of macro and micro nutrients • Classifications of nutrients according to their importance and functions • Methods of calculating nutrient solutions • Detection of nutrients • Differences between passive absorption and active absorption • A brief idea about heavy metals and their effect on plants • Study the reasons for the appearance of symptoms of element deficiency on plants • Study the methods of water mass transfer within the plant body • Study the ways nutrients reach the plant • A simplified idea about the effects of stress on plants trees in citi and central islands

9. Teaching and Learning Strategies

Strategies	Ask students inferential questions Establishing training programs Finding solutions to the problems and obstacles tha students encounter in the practical part Enabling students to find solutions and applications f

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

Thirteent	4	memorizing, understandin analyzing, and applying	Second month exar	Attend	a daily tes
fourteent	4	memorizing, understandin analyzing, and applying	Food farms	Attend	a daily tes
Fifteenth	4	memorizing, understandin analyzing, and applying	Nutrient solutions	Attend	a daily tes

11. Course Evaluation

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

12. Learning and Teaching Resources

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

Course Description Form

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

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

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Microbiology
Main references (sources)	Bacteriology theoretical part Bacteriology practical part
Recommended books and references (scientific	

Course Description Form

1. Course Name:

Agricultural guidance

2. Course Code:

3. Semester / Year:

first Semester / second year

4. Description Preparation Date

1/9/2024

5. Available Attendance Forms:

In a present way

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

30 hours / 2 units

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

Name:
Email:

8. Course Objectives

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

9. Teaching and Learning Strategies

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

10. Course Structure

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

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

11. Course Evaluation

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

12. Learning and Teaching Resources

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

Electronic References, Websites	All agricultural magazine sites

Course Description Form

1. Course Name:
Biotechnology
2. Course Code:
3. Semester / Year:
Second semester / third year
4. Description Preparation Date:
1/9/2024
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 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 Outcomes	Unit or subject name	Learning method	Evaluation method
the first	4		Introduction to the science of life technologies, the stages of its development, and the reasons for its development	Attend	a daily test
the second	4		Experiments to prove genetic material, the structure of DNA, and the difference between eukaryotes and prokaryotes	Attend	a daily test

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

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

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

Course Description Form

1. Course Name:
Insect physiology
2. Course Code:
3. Semester / Year:
First semester /Third
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms
In person
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (30 theoretical + 30 practical) / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Hussnian Taher 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 an discussion	Written test
2	4	Memorize, understand. analysis	Digestive system: - The physiological functions of the parts of the digestive canal, absorptive digestion, the role of living organisms in digesting food materials.	Lecture and discussion	Written tests
3	4	Memorize, understand. analysis	Excretory system in insects: the typical excretory system Methods of removing toxic and excess substances, the role of the device in water balance.	Lecture and discussion	Written tests
4	4	Memorize, understand. analysis	Respiratory system: How to breathe in terrestrial and aquatic parasitic insects	Lecture and discussion	Written tests

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

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

Course Description Form

1. Course Name:
Parasitic Nematodes
2. Course Code:
3. Semester / Year: 2024
Second semester / third year
4. Description Preparation Date:
1/9/2024
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 Email: noorkadim@uowasit.edu.iq

8. Course Objectives	
Course Objectives	• Identify nematode diseases that affect plants and their life cyc • Knowing how to isolate and diagnose nematodes in the laborat • Knowing the appropriate methods to combat caecilians, wheth using agricultural or natural methods, using biological or chemica methods, or using resistant varieties. • Identify the role of nematodes as vectors of viral and bacteria diseases and how to prevent and reduce infection in the field • It highlights the skill of field dealing with farms in explaining problems of nematode diseases and methods of controlling them

9. Teaching and Learning Strategies	
Strategy	By using theoretical lectures and practical lessons in the laboratory a field visits to the fields, using illustrative images and videos related to scientific subject, as well as searching the Internet to solve the questio posed by the teacher and holding a discussion circle on the topics presented.

10. Course Structure

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

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

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

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

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

Course Description Form

1. Course Name:
Bees breeding
2. Course Code:
3. Semester / Year:
Second Semester / 2024
4. Description Preparation Date
1/9/2024
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 tha affect honey bees and methods of treatment. B- the skills objectives of the program; B-1 - Students' knowledge of honey bee breeding and screening programs B-2 - take the decision quickly to control pests that affect honeybees B-3 - access to the information network and knowledge of modern beekeeping B-4 - Using modern technology in sorting honey B - 5 - To master the use of modern methods and advanced in education.

10. Course Structure

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

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

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

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

12. Learning and Teaching Resources	
Required textbooks (curricular books, 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:
1/9/2024
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: Email:

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,	Measures of central	Lecture and	Quick exam

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

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

Course Description Form

1. Course Name:	
Mycology II	
2. Course Code:	
3. Semester / Year:	
the second semester / third year	
4. Description Preparation Date:	
1/9/2024	
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 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 (chemica biological, integrated control programs)
9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives * The student gets to know the diseases that affect plants and their nam * To try to find out how pathogens are transmitted from one field to another or how the pathogen spreads through the same field. * The student must master how to prevent and control the occurrence diseases. * To be able to find solutions in cases of rapidly spreading epidemic diseases and ways to control them. * Identify quick methods for diagnosing fungal infections of plants. * The student must master how to disseminate the information obtained controlling the disease. B - The skills objectives of the course. * The student must master how to diagnose these diseases. * The student will be able to treat fungal infections that affect 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 etal 1990		

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

Course Description Form

1. Course Name:
Plant diseases (Plant pathology)
2. Course Code:
3. Semester / Year:
Second semester / third year
4. Description Preparation Date:
1/9/2024
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 Email: aaltaie@uowasit.edu.iq
8. Course Objectives

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

10. Course Structure

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

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

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

Course Description Form

1. Course Name:
Weed control
2. Course Code:
3. Semester / Year:
Second semester / third year
4. Description Preparation Date:
1/9/2024
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.Amer Jasem Email: a a b b o o d @ u o w a s i t . e d u . i q
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:
1/9/2024
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 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:
1/9/2024
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 environment factor in plant life. Pictur of water in nature and ho plants are affected by it	The presence	Daily tests
7	4	Memorization, understanding, practical application	Dividing plants according their water needs, the effe of rain on the spread of plants	The	Daily tests
8	4	Memorization, understanding, practical application	Winds, their types, air masses and fronts, the eff of winds on plants	The presence	Daily tests
9	4	Memorization, understanding, practical application	Atmospheric pressure, factors that affect.	The presence	Daily tests
10	4	Memorization, understanding, practical application	atmospheric pressure, distribution of	The presence	Daily tests
11	4	Memorization, understanding, practical application	atmospheric pressure and circulation,	The presence	Daily tests
12	4	Memorization, understanding, practical application	main ranges of atmosphe pressure	The presence	Daily tests
13	4	Memorization, understanding, practical application	The climate of Iraq and i impact on the spread of desert plants	The presence	Daily tests
14	4	Memorization, understanding, practical application	Pollution, its types, plan reagents, the role of plants preserving the environme from pollution	The	Daily tests

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports..... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Ecology, physical factors, biological factors, pl environment, plants and their environments
Recommended books and references (scientific journals, reports...)	Hosting directors of weather station units in order learn about measuring and reading weather conditi

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

Course Description Form

1. Course Name:
Plant Breeding and Improvement
2. Course Code:
3. Semester / Year: fourth
Second semester / third year / plant protection
4. Description Preparation Date: 2023-2024
1/9/2024
5. Available Attendance Forms:
In person
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (30 theoretical + 30 practical) / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Hussianan Taher Email: halhachami@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 Frequancy	Lecture and discussion	Exams , reports, discussions
10	4	Memorization, understanding, practical application	Hybridization and hybrid cultivars	Lecture and discussion	Exams , reports, discussions
11	4	Memorization, understanding, practical application	Mutation Breeding	Lecture and discussion	Exams , reports, discussions
12	4	Memorization, understanding, practical application	Chromosomal polyploidy and relationships in plant breeding	Lecture and discussion	Exams , reports, discussions
13	4	Memorization, understanding, practical application	Breeding of self-pollination plants	Lecture and discussion	Exams , reports, discussions
14	4	Memorization, understanding, practical application	Breeding of cross pollination plants	Lecture and discussion	Exams , reports, discussions
15	4	Memorization, understanding, practical application	Second Exams	Lecture and discussion	

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

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

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

Course Description Form

1. Course Name:
Integrated pests management
2. Course Code:
3. Semester / Year:
Spring Semester / 2024
4. Description Preparation Date
1/9/2024
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: aabbood@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 an losses they cause**	**Lecture and discussion**	Quick exam
3	2	**Save, understand, practical application**	**Basic elements of integrated manageme programs**	**Lecture and discussion**	Oral tests
4	2	**Save, understand, practical application**	**The role of sampling, surveillance, and continuous pest**	**Lecture and discussion**	Quick exam

			prediction programs		
5	2	**Save, understand, practical application**	**The role of chemical pesticides in pest management**	**Lecture and discussion**	Oral tests
6	2	**Save, understand, practical application**	**The role of plant resistance in pest management**	**Lecture and discussion**	Quick exam
7	2	**Save, understand, practical application**	**The use of parasites a insect predators**	**Lecture and discussion**	Written exam
8	2	**Save, understand, practical application**	**The role of behaviora resistance in pest management**	**Lecture and discussion**	Oral tests
9	2	**Save, understand, practical application**	**Rank straight wings. Half - wing rank.**	**Lecture and discussion**	Quick exam
10		**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 progran**	**Lecture and discussion**	Oral tests
15	2	**Save, understand, practical application**	**Some successful examples of integrate pest management and future prospects.**	**Lecture and discussion**	Quick exam

11. Course Evaluation

Daily exam ; 10 grades
Daily activity ; 10 grades
Homework ; 10 grades
Reports ; 10 grades
Monthly exam ; 60 grades

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**1. Integrated pest control / D. Eyad Yousef 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:
1/9/2024
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 Fraj 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 dream	Lecture and discussion	Oral exams
5	4	Memorization, understanding, practical application	Methods of dispersal of mite families	Lecture and discussion	Oral exams
6	4	Memorization, understanding, practical application	The most important theories of silk spinning	Lecture and discussion	Oral exams
7	4	Memorization, understanding, practical application	Written exam	Lecture and discussion	Oral exams
8	4	Memorization, understanding, practical application	Habits and habitat	Lecture and discussion	Oral exams
9	4	Memorization, understanding, practical application	Reproduction in a dream	Lecture and discussion	Oral exams
10	4	Memorization, understanding, practical application	The external appearance of the dream	Lecture and discussion	Oral exams
11	4	Memorization, understanding, practical application	Various dream devices	Lecture and discussion	Oral exams
12	4	Memorization, understanding, practical application	Pest resistance to chemical pesticides	Lecture and discussion	Oral exams
13	4	Memorization, understanding, practical application	Anti-dream	Lecture and discussion	Oral exams
14	4	Memorization, understanding, practical application	Integrated crop management	Lecture and discussion	Oral exams
15	4	Memorization, understanding, practical application	Written exam	Lecture and discussion	Oral exams

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

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

Course Description Form

1. Course Name:
Biological Control
2. Course Code:
3. Semester / Year:
Autumn Semester / 2024
4. Description Preparation Date
1/9/2024
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 Email: aabbood@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 insec	Lecture and discussion	Quick exam

11. Course Evaluation

Daily exam ; 10 grades
Daily activity ; 10 grades
Homework ; 10 grades
Reports ; 10 grades
Monthly exam ; 60 grades

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Biological Control / D. Hamza Kadum Zubaidy
Main references (sources)	1-Biological control its 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:	
1/9/2024	
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 Email: aaltaie@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	• Introducing the student to the various types of diseases that affect field cr (fungal, bacterial, viral, nematode, and physiological). • Determine the economic importance of these diseases • Identify various environmental factors and their impact on the spread infectious plant diseases • Pathological symptoms caused by these diseases • Finding the best ways to combat diseases through methods (natural, appli mechanical, agricultural, biological, legislative, chemical, genetic, integra control programs)
9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives * The student should know the diseases that affect agricultural crops and their names. * To try to find out how pathogens are transmitted from one research to another or th causative spread through the same field. * The doctor must master how to prevent and control diseases. * Innovation to find solutions in cases of rapid epidemic diseases and control them. * Learn about modern methods of disease diagnosis and control. * The student must master how to disseminate the information obtained in disease surveillance.

10. Course Structure

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

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

11. Course Evaluation

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

12. Learning and Teaching Resources

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

Course Description Form

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

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

10. Course Structure

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

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

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
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:

1/9/2024

5. Available Attendance Forms:

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

60 Hours / 3 Units

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

Name: Dr. Jawadayan Talib
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 t 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 infecti movement, transmission wit plant tissues	Lecture, discuss and examinationsNs	Exam
8	4	Memorization, understanding, practical	Viruses multiply	Lecture, discuss and oral	quiz
9	4	Memorization, understanding, practical application	Mixed infection w viruses and their ef on plants	examinationsNs Lecture, discuss and examinationsNs	Oral exam
10	4	Memorization, understanding, practical application	Symptoms of viral pl diseases: exter internal, and enclo bodies	examinationsNs Lecture, discuss and examinationsNs	quiz
11	4	Memorization, understanding, practical application	Methods transmission and spr of plant viruses	examinationsNs Lecture, discuss and examinationsNs	Oral exam

12	4	Memorization, understanding, practical application	Virus diagnosis	examinationsNs Lecture, discuss and examinationsN	quiz
13	4	Memorization, understanding, practical application	Resistance to v diseases	examinationsNs Lecture, discuss and examinationsN	Oral exam
14	4	Memorization, understanding, practical application	The most 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

1/9/2024

5. Available Attendance Forms: weekly lecture schedule

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

60 Hours \ 3 Units

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

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

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

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

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Books available for free
Main references (sources)	-Ecology of Insects/Concepts and
Recommended books and references (scientific journals, reports...)	- Journals / insect ecology - Bulletins issued by 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:

1/9/2024

5. Available Attendance Forms:

The presence

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

60 hours/3 units

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

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

			damage caused by m and rats		
13	4	Memorize,understa	Chemical methods used combat mice and rats	Lecture a discussion	Written tes
14	4	analysis	The most important ty of poisons used in cont non-chemical means control	Lecture a discussion	Written tes
15	4	Memorize,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 a discussion	Written tes

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

Course Description Form

1. Course Name:

Orchard insects

2. Course Code:

3. Semester / Year:

second/fourth

Description Preparation Date:

1/9/2024

5. Available Attendance Forms:

The presence

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

60 Hours \ 3 Units

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

Name: Dr. Amer Jasem

Email: aabbood@uowasit.edu.iq

8. Course Objectives

Course Objectives	**1-The student learns about the most important insects that infect orchards** **2-The student learns about the most important insects that infect vegetables** **3-The student learned about the most important insects that infect greenhouse plants**

9. Teaching and Learning Strategies

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

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	**4**	**Memorization, understanding, analysis**	The most important dam caused by insects to plants	**Lecture a discussion**	Written 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, reports .....etc

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:
1/9/2024
5. Available Attendance Forms:
Lecturer's schedule
6. Number of Credit Hours (Total) / Number of Units (Total)
60 Hours \ 3 Units
7. Course administrator's name (mention all, if more than one name)
Name: DR. Hussnian Taher 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 fie and identify the harmful source of infection
9. Teaching and Learning Strategies	
Strategy	B1 - Knowing the concept of plant protection, especially infection resulting from biological causes B2 - Enabling students to diagnose infected plants and the possibi of isolating and diagnosing the causative pathogens B3 - The student's ability to estimate the economic critical limit

10. Course Structure

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

2	2 theoretical and 2 practical	Preserving, understandi analyzing, applying	The most important insects w general damage or multi-fam insects: 1- The ground 2- Locusts 3- Carob The nature of damage phenotypic characteristics the most important multi-fam insects	lecture discussion,	oral exams
3	2 theoretical and 2 practical		The most important insects grain crops (insects of the Poaceae family, such as 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 theoreti 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 theoreti and 2 practical		Theoretical test 1. Practical test 1.	lecture discussion	Exam
7	2 theoreti and 2 pra al		The most important insects o industrial crops (tobacco insects) The nature of the damage the most important phenoty characteristics of the m important insects of sugar be and tobacco	lecture discussion	Oral exam

8	2 theoreti and 2 pra a		The most important insects o industrial crops (safflower insects) The most important dama and appearance characteris of safflower insects	lecture discussion	Oral exam
9	2 theoreti and 2 pra a		The most important insects o industrial crops (sunflower insects) The most important dama and phenotypic characteris of sunflower insects	lecture discussion	Oral exam
10	2 theoreti and 2 pra a		The most important insects o industrial crops (cotton insec 1) The most important dama and phenotypic characteris of cotton insects: 1	lecture discussion	Oral exam
11	2 theoreti and 2 pra a		The most important insects o industrial crops (cotton insec 2) The most important dama and phenotypic characteris of cotton insects2	lecture discussion	
12	2 theoreti and 2 pra a		The most important pathoge that infect field crops The most important dama and phenotypic characteris of acrosis	lecture discussion	Oral exam
13	2 theoreti and 2 pra a		Applied control of econo insects 1 How to cond applied control 1	lecture discussion	
14	2 theoreti and 2 practical		Applied control of economic insects 2 How to conduct applied con 2	lecture discussion	Oral exam
15	2 theoreti 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:					
1/9/2024					
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 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 an	1. Orchard and vegetables diseases / Dr. Samer Michael
Main references (sources)	- Iraqi Agriculture Journal - Journals dealing with diseases of all field crops - Bulletins issued by agricultural companies and pesticide companies
Recommended books and references (scientific journals, reports...)	- All agricultural sites and crop disease journals
Electronic References, Websites	- World Wide Web