

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



**Academic Program and Course
Description Guide (Department of
Horticulture and Landscape
Gardening**

2024

Introduction:

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

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

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

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

Concepts and terminology:

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

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

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

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

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

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

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

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

Academic Program Description Form

University Name: University of Anbar

Faculty/Institute: College of Agriculture

Scientific Department: Horticulture and land scope gardening

Academic or Professional Program Name: Courses (Autumn course and spring course)

Final Certificate Name: BSc in Agricultural sciences

Academic System: By Semester

Description Preparation Date: 25/01/ 2024

File Completion Date: 14/04/2024

Signature:

Head of Department Name:

Prof. Dr. Shamil I. Neamah

Date: 14.4. 2024

Signature:

Scientific Associate Name:

Assist. Prof. Dr. Osama Hussein Mahedi

Date: 14/4/2024



The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Assist. Prof. Dr. Waleed Ismail kurdi

Date: 14/4/2024

Signature:



Approval of the Dean
Prof. Dr.

Muham Ali Abed Khalaf
Dean of the College of Agriculture

1. Program Vision

Preparing scientifically qualified cadres and opening up to society to transfer modern agricultural technologies and keep pace with global development in the agricultural sector.

2. Program Mission

The main goal of the department's administration is to provide society with resources and staff working in various educational and pedagogical fields, as well as the industrial, banking, security, and economic sectors through:

- 1- Two agricultural engineer teachers graduated with high-level qualifications capable of modernizing the infrastructure in the field of agriculture.
- 2- Developing students, providing them with modern technologies, and providing services to the community and the labor market.
- 3- Building leadership qualities in graduates by training them to work as one team.
- 4- Support and provide a good work environment for students and faculty members.
- 5 - Caring for, supporting and encouraging outstanding students.

3. Program Objectives

1. Preparing graduates with high theoretical and practical skills to meet the needs of industry, technological development and community service in the field of agricultural engineering.
2. Providing the graduates with the applied practical skills and the necessary engineering background according to the scientific developments taking place in the methodological vocabulary and modern teaching methods to pursue postgraduate studies in the various specializations of agricultural engineering.

7. Program Description

3. Preparing graduates to participate actively in building and rebuilding the country and achieving economic and social benefits for society.

4. Program Accreditation

Does the program have program accreditation? And from which agency?

5. Other external influences

Is there a sponsor for the program?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	7	--	--	main
College Requirements	19			main
Department Requirements	21			main
Summer Training	Yes	--	--	--
Other	--	--	--	--

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

First Year				
Course Description	Course Code	Course Name	Class Hours	Units
1st Semester \Core	AH 1910	Principles of the food industry	2	3
1st Semester \Core	AH 1911	Agricultural machinery and equipment	2	3
1st Semester \Core	AH 1912	Plane Surveying	1	3
1st Semester \Core	AH 1913	Mathematics	2	-
1st Semester \Core	AH 1914	General plant	2	3
1st Semester \Core	AH 1915	Computer/ 1		
1st Semester \Core	AH 1916	English Language/1	1	-
1st Semester \Core	AH 1917	Human Rights	1	-
2nd Semester \Core	AH 1910	Principles of field crops	2	3
2nd Semester \Core	AH 1911	Soil principles	2	3
2nd Semester \Core	AH 1912	organic chemistry	2	3
2nd Semester \Core	AH 1913	Principles of animal production	2	3
2nd Semester \Core	AH 1914	Statistics	1	3
2nd Semester \Core	AH 1915	Principles of agricultural economics	2	-
2nd Semester \Core	AH 1916	Engineering Drawing	-	3
2nd Semester \Core	AH 1917	Computers/ 2	-	3
2.11Second Year				
Course Description	Course Code	Course Name	Class Hours	Units
1st Semester \Core	AH1920	Crimes of the defunct Baath Party	1	-
1st Semester \Core	AH1921	Principles of microbiology	2	3
1st Semester \Core	AH1922	Organic Agriculture	2	3
1st Semester \Core	AH1923	Landscape design principles	2	3
1st Semester \Core	AH1924	Plant genetics	2	3
1st Semester \Core	AH1925	Horticultural plant insects	1	3
1st Semester \Core	AH1926	Plant nutrition	2	3
1st Semester \Core	AH1927	English language/ 2	1	-
1st Semester \Core	AH1928	Computer 3	-	3
2nd Semester \Core	AH19210	Biochemistry	2	3
2nd Semester \Core	AH19211	Plant Anatomy	2	3
2nd Semester \Core	AH19212	Plant Physiology	2	3
2nd Semester \Core	AH19213	Nurseries and propagation	2	3
2nd Semester \Core	AH19214	Principles of agricultural extension	2	-
2nd Semester \Core	AH19215	Weeds	2	3
2nd Semester \Core	AH19216	Computer/ 4	-	3
2nd Semester \Core	AH19217	Arabic Language	2	-

Third Year 3.11				
Course Description	Course Code	Couse Name	Class Hours	Units
1st Semester \Core	AH1930	Deciduous fruit/ 1	2	3
1st Semester \Core	AH1931	Vegetables production/ 1	2	3
1st Semester \Core	AH1932	Ornamental plants/ 1	1	3
1st Semester \Core	AH1933	Design and analysis of experiments	2	3
1st Semester \Core	AH1934	Plant growth regulators	2	3
1st Semester \Core	AH1935	Irrigation and puncture	2	3
1st Semester \Core	AH1936	Plant environment	2	3
2nd Semester \Core	AH19310	Vegetables production/ 2	2	3
2nd Semester \Core	AH19311	Ornamental plants/ 2	1	3
2nd Semester \Core	AH19312	Apiculture	2	3
2nd Semester \Core	AH19313	Horticultural plant diseases	1	3
2nd Semester \Core	AH19314	Plant breeding	2	3
2nd Semester \Core	AH19315	Medicinal and aromatic plants	2	3
2nd Semester \Core	AH19316	Deciduous fruit/ 2	2	3
2nd Semester \Core	AH19317	English language/ 3	1	-
Fourth Year		4.11		
Course Description	Course Code	Couse Name	Class Hours	Units
1st Semester \Core	AH1940	Plant tissue culture	2	3
1st Semester \Core	AH1941	Evergreen fruit	2	3
1st Semester \Core	AH1942	Vegetable seeds production	2	3
1st Semester \Core	AH1943	Protected agriculture	2	3
1st Semester \Core	AH1944	Landscape engineering	1	3
1st Semester \Core	AH1945	Farm management	1	3
1st Semester \Core	AH1946	Graduation project/1	--	3
2nd Semester \Core	AH19410	Production of grapes and small fruits	2	3
2nd Semester \Core	AH19411	Palm production	2	3
2nd Semester \Core	AH19412	Biotechnology	2	3
2nd Semester \Core	AH19413	Harvesting and storing horticultural crops	2	3
2nd Semester \Core	AH19414	Soil fertility and fertilizers	2	3
2nd Semester \Core	AH19415	English language/ 4	1	-
2nd Semester \Core	AH19416	Graduation project/2	--	3
2st Semester \Core	AH19417	Seminars	1	----

8. Expected learning outcomes of the program

Knowledge:

1. The graduate will have the ability to identify and formulate horticultural problems through familiarization with the basic principles of agricultural sciences such as plant and soil sciences, mathematical sciences, engineering planning, staff management, scheduling, and monitoring to ensure successful project implementation.
2. The graduate possesses knowledge of various irrigation systems and techniques used to save water so that he can design, implement, and control appropriate irrigation systems to ensure sustainable use of water resources.
3. The graduate possesses knowledge of different types of plants, their requirements, and methods of cultivation and maintenance. He can identify plants suitable for specific conditions such as soil, climate, and lighting and can carry out the planting and care operations necessary to promote plant growth and development.
4. The graduate can provide agricultural consultations to institutions and governmental bodies, evaluate surrounding conditions, make recommendations regarding the organization, cultivation, and improvement of plants, and solve problems related to plants, soil, and resource management.
5. The graduate can conduct scientific research in the field of horticulture and garden engineering, develop and improve agricultural technologies, and come up with innovative solutions to the problems facing the agricultural sector.
6. The graduate can manage horticultural projects, including planning resources, managing time and budget, dealing with teams, and coordinating operations.

Skills :

1. The graduate will have extensive knowledge in plant sciences, including methods of plant cultivation, their water, pedagogical and environmental requirements, and control of plant pests and diseases.
2. The graduate will have skills in designing and planning gardens and coordinating the various elements in the green space, including plants, paths, water bodies, and architectural elements.
3. The graduate will be able to manage horticultural projects, including planning resources, managing time and budget, dealing with teams, and coordinating the process.
4. The graduate will have a good understanding of the technology used in the field of horticulture and landscaping, including advanced irrigation systems, agricultural tools and equipment, and modern techniques in agriculture such as hydroponics and vertical farming.
5. The graduate will have good communication skills to interact with clients and project workers and provide instructions and recommendations clearly and effectively.

6. The graduate will be familiar with professional standards and practices in horticulture and landscape architecture and must be able to act ethically and responsibly.
7. The graduate will be able to analyze problems related to orchards, vegetable and ornamental plants, as well as gardens and green spaces, and develop practical and innovative solutions.
8. The graduate can also seek continuous development and acquire new skills by participating in training courses and workshops related to the field of horticulture and garden engineering.

Ethics :

Preparing engineering designs for agricultural parts and systems.

Analyzing and discussing the results of engineering tests for use in design and evaluation processes.

The ability to write and draft engineering technical reports on the results of scientific examinations and tests.

The ability to extract test results and their effects from the test.

9. Teaching and Learning Strategies :

1. Preparing presentations that explain the basic concepts in the field of horticulture and providing detailed lectures on various topics. Use pictures and illustrations to illustrate ideas and concepts better.
2. Organize interactive sessions and workshops that allow participants to participate in the learning process actively. Practical models for growing vegetable plants orchids or designing and landscaping gardens are presented, and participants are encouraged to participate and apply them in practice.
3. Organize field trips to local parks, gardens, nurseries, and farms. Could you explain how to care for and maintain it.
4. Using multimedia, mobile applications, and educational programs to provide information and interact with students.
5. Urging students to participate in practical projects that require the service and care of fruit trees, vegetables, and ornamental plants and guiding and assisting them in choosing appropriate plants, planning the space, and caring for the plants. This enhances practical learning and gives them an opportunity to apply the concepts they have learned.

10. Evaluation methods:

- Theoretical semester exams: 20%, practical semester exams (laboratory, field, paper): 20%, theoretical daily exams: 10%
- Final practical test (laboratory, field, paper): 20%, final theoretical test: 30%

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor (2)	Horticulture and landscaping gardening	Fruit production	---	---	---	---
Professor (1)	Horticulture and landscaping gardening	Production and physiology of sustainable fruit	---	---	---	---
Professor (1)	Horticulture and landscaping gardening	Planting and producing deciduous fruit	---	---	---	---
Professor (1)	Horticulture and landscaping gardening	Breeding plants in protected environments	---	---	---	---
Professor (1)	Horticulture and landscaping gardening	Vegetable seed production	---	---	---	---
Professor (1)	Horticulture and landscaping gardening	Vegetable production and nutrition	---	---	---	---
Professor (1)	Horticulture and landscaping gardening	Vegetable production and storage	---	---	---	---
Professor (1)	Horticulture and landscaping gardening	Breeding horticultural plants	---	---	---	---
Professor (1)	Horticulture and landscaping gardening	Vegetation and fruit nutrition	---	---	---	---
Professor (1)	Agricultural sciences/ field crops	Plant tissue culture	---	---	---	---
Assistant Professor (1)	Horticulture and landscaping gardening	Production and physiology of fruits after harvest	---	---	---	---
Assistant Professor (1)	Horticulture and landscaping gardening	Peas and more fruits	---	---	---	---
Assistant Professor (1)	Horticulture and landscaping gardening	Production of ornamental plants	---	---	---	---
Assistant	Horticulture and	Garden engineering	---	---	---	---

Professor (1)	landscaping gardening					
Assistant Professor (1)	Horticulture and landscaping gardening	Plant environment	---	---	---	---
Assistant Professor (1)	Horticulture and landscaping gardening	Plant tissue culture	---	---	---	---
Assistant Lecture (1)	Horticulture and landscaping gardening	Horticulture and landscaping gardening	---	---	---	---

Professional Development

Mentoring new faculty members

1. The department's scientific committee guides new faculty members through:
2. Clarify the vision, mission, and goals that the educational institution seeks to achieve, as well as the policies and standards to which they must adhere.
3. Determine the educational objectives for each course and explain to them the preferred teaching methods and the appropriate methodology to achieve these objectives.
4. Encourage new faculty members to build strong and productive relationships with students. They must be available for students' academic inquiries and needs and assist them in achieving their educational goals.
5. Providing them with support in the field of scientific research and encouraging them to participate in conferences and publishing research in prestigious scientific journals, as well as guiding them in choosing research topics and providing assistance in conducting research and analyzing data.
6. Providing them with opportunities for continuing professional development, whether through internal or external workshops, training programs, or educational courses that encourage them to continue their learning and develop their teaching and research skills.

Professional development of faculty members

The Department's Scientific Committee, under the direct guidance of the Department Head and the College Dean, has a plan to develop the college through:

1. Paying attention to scientific communication with students, colleagues, and the academic community by organizing lectures, seminars, and workshops and participating in academic events to exchange knowledge and experiences.
2. Promoting professional development through communication and cooperation with local and international companies and research institutions by organizing field visits, exchanging experiences, and cooperating in research and applied projects.
3. Holding annual conferences in cooperation with Iraqi and Arab universities and research institutions with the participation of all faculty members (2021-2022) and (2022-2023).
4. Contributing to conferences in various universities inside and outside Iraq.

5. Contributing to publishing research in local, regional, and international journals (Scopus and Clarivate).
6. Participation in various committees at the university and the ministry.

12. Acceptance Criterion

Central registration is usually carried out by the Ministry of Higher Education based on the degree, professional field, location and university requirements.

13. The most important sources of information about the program

The program initiative came as a result of scientific and technological development in the agricultural field and research on sustainable agriculture and climate change. Through cooperation with universities and research centers, reviewing the reports of the Food and Agriculture Organization of the United Nations, and reviewing modern scientific periodicals and magazines that specialize in the fields of agriculture and agricultural sciences, the need emerged to prepare an academic program. Therefore, the program information is mainly derived from international programs, and the idea of the academic program in Iraq came from the need to develop an educational system that contributes to the qualification and training of Iraqi cadres in various fields and thus keeps pace with development and education in international universities.

14. Program Development Plan

Agricultural technologies are constantly evolving with technological progress in the agricultural field. Here, it was necessary to keep pace with this development, so the need arose to update the curriculum according to the requirements of the labor market by specifying some indicators. These indicators include graduation rates, student evaluations, student performance in tests or final evaluations, Developing essential skills, student participation in academic and community activities, and other relevant factors, or through the use of questionnaires, opinion polls, performance tests, and student evaluations, as well as comparing data between different periods, or between different groups of students, and thus conducting periodic evaluations to examine progress. The program and these evaluations are quarterly or annual.

Program Skills Outline

Please put (√) in the boxes corresponding to the individual learning outcomes of the evaluated program

Year \ Course			Required learning outcomes of the program															
Course name	Course code	Core or elective	Knowledge and understanding				Subject-specific skills				Thinking skill				General and transferable skills (Or) Other skills related to employability and personal development			
			A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
1st Year			A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Principles of the food industry	AH 1910	Core	*															
Agricultural machinery and equipment	AH 1911	Core	*															
Plane Surveying	AH 1912	Core				*				*								
Mathematics	AH 1913	Core																
General plant	AH 1914	Core	*							*								
Computer/ 1	AH 1915	Core								*								

English Language/1	AH 1916	Core	*															
Human Rights	AH 1917	Core																
Principles of field crops	AH 1910	Core	*															
Soil principles	AH 1911	Core																
organic chemistry	AH 1912	Core	*															
Principles of animal production	AH 1913	Core	*															
Statistics	AH 1914	Core	*															
Principles of agricultural economics	AH 1915	Core																
Engineering Drawing	AH 1916	Core	*															
Computers/ 2	AH 1917	Core				*												
2nd Year			A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D2	D3	D4
Crimes of the defunct Baath Party	AH1920	Core																
Principles of microbiology	AH1921	Core																

Organic Agriculture	AH1922	Core	*																
Landscape design principles	AH1923	Core																	
Plant genetics	AH1924	Core																	
Horticultural plant insects	AH1925	Core	*			*													
Plant nutrition	AH1926	Core	*																
English language/ 2	AH1927	Core			*				*		*								
Computer 3	AH1928	Core																	
Biochemistry	AH19210	Core																	
Plant Anatomy	AH19211	Core																	
Plant Physiology	AH19212	Core		*		*													
Nurseries and propagation	AH19213	Core	*						*										
Principles of agricultural extension	AH19214	Core				*					*								
Weeds	AH19215	Core	*			*													

Computer/ 4	AH19216	Core	*			*												
Arabic Language	AH19217	Core	*															
3 rd Year			A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D2	D3	D4
Deciduous fruit/ 1	AH1930	Core	*															
Vegetables production/ 1	AH1931	Core	*															
Ornamental plants/ 1	AH1932	Core																
Design and analysis of experiments	AH1933	Core	*															
Plant growth regulators	AH1934	Core																
Irrigation and puncture	AH1935	Core		*														
Plant environment	AH1936	Core			*			*										
Vegetables production/ 2	AH19310	Core							*									
Ornamental plants/ 2	AH19311	Core																
Apiculture	AH19312	Core					*											

Horticultural plant diseases	AH19313	Core	*															
Plant breeding	AH19314	Core																
Medicinal and aromatic plants	AH19315	Core																
Deciduous fruit/ 2	AH19316	Core																
English language/ 3	AH19317	Core																
4 th Year			A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D2	D3	D4
Plant tissue culture	AH1940	Core	*							*		*						
Evergreen fruit	AH1941	Core	*					*										
Vegetable seeds production	AH1942	Core										*						
Protected agriculture	AH1943	Core	*															
Landscape engineering	AH1944	Core																
Farm management	AH1945	Core																
Graduation project/1	AH1946	Core																

Production of grapes and small fruits	AH19410	Core	*															
Palm production	AH19411	Core	*			*			*									
Biotechnology	AH19412	Core	*															
Harvesting and storing horticultural crops	AH19413	Core	*		*													
Soil fertility and fertilizers	AH19414	Core							*									
English language/ 4	AH19415	Core	*															
Graduation project/2	AH19416	Core																
Seminars	AH19417	Core																

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

Course Description Form(The First Stage)

Course Description Form

1. Course Name:	
Principles of the food industry	
2. Course Code:	
AH1910	
3. Semester / Year:	
2023-2024	
4. Description Preparation Date:	
25/1/2024	
5. Available Attendance Forms:	
Mandatory	
6. Number of Credit Hours (Total) / Number of Units (Total):	
75 h.	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Fadwa Waleed Abdulqahar and Dr. Sari Ali Hussein Email: ag.fadwa.waleed@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	<p>The Fundamentals of Food Manufacturing course aims to enrich students' knowledge of the following:</p> <ol style="list-style-type: none">1- The science of food processing and its objectives2- How to establish food factories, the factors that must be provided for this purpose, and the obstacles that stand in the way of achieving the development of food industries in Iraq.3- Causes of food spoilage and various manifestations of spoilage.4- The various means of preserving food and the various manufacturing processes that are performed on food and how to implement them in food factories in a scientific and sequential manner for the purpose of preserving food and manufacturing various products, such as canning, cooling, freezing, drying, pickling, and preserving with high salt and sugar concentrations and food additives.5- Manufacturing specific food products such as jams, juices, vinegar, pickles, tomato products, molasses, burgers, and samoon.6- Different packaging materials, their advantages, disadvantages, and uses.
9. Teaching and Learning Strategies	
Strategy	1. Developing teaching programs in coordination with higher departments.

2. Developing teaching curricula similar to the work environment.
3. Sending students to departments and directorates for the purpose of conducting summer school.
4. Assigning students to conduct research and reports related to the course.
5. Assigning students to use of libraries and websites to collect sources on course topics.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Principles of the food industry	Introduction to food manufacturing, its importance, requirements, and obstacles to its development in Iraq	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
2	5	Principles of the food industry	Food preservation and its various methods – Refrigerating and freezing preservation	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting

					extracurricular activities.
3	5	Principles of the food industry	Preservation using high temperature and canning	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
4	5	Principles of the food industry	Packaging materials	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
5	5	Principles of the food industry	Preservation by drying	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions,	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion

				and class participation.	using brainstorming and positive reinforcement, and conducting extracurricular activities.
6	5	Principles of the food industry	Food preservation by pickling and pickles manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
7	5	Principles of the food industry	Preservation with sugar and salt solutions	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
8	5	Principles of the food industry	The 1 st monthly exam	Daily, monthly, and quarterly	Delivering theoretical lectures and

				exams + grades awarded for extracurricular activities, discussions, and class participation.	conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
9	5	Principles of the food industry	Jam and Jelly manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
10	5	Principles of the food industry	Tomato paste and tomato products manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and

					conducting extracurricular activities.
11	5	Principles of the food industry	Date and Date syrup manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
12	5	Principles of the food industry	Samoon bread manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
13	5	Principles of the food industry	Burger manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities,	Delivering theoretical lectures and conducting class discussions to stimulate thinking and

				discussions, and class participation.	conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
14	5	Principles of the food industry	Food additives	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
15	5	Principles of the food industry	The 2 nd monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.

11.Course Evaluation

1- Conducting tests during the semester and asking questions to students to

determine their understanding of the subject.

2- Conduct a research discussion at the end of the semester to find out students' choices in courses.

3- Conduct extracurricular activity by writing reports or educational brochures after completing the semester period to determine the extent to which students are able to diagnose problems and how to find solutions.

12.Learning and Teaching Resources

Required textbooks (curricular books, any)	Hassan, Abdul Ali Mahdi and Al-Hakim, Sadiq Hassan. 1985. Fundamentals of Food Manufacturing. Ministry of Higher Education and Scientific Research - University of Baghdad.
Main references (sources)	Al-Shaibani, Ali Muhammad Hussein. 1989. Food Processing - Section One. Ministry of Higher Education and Scientific Research. University of Al Mosul.
Recommended books and references (scientific journals, reports...)	Al-Samahi, Salah Kamel et al., 2011. Food Technology. Amman, Dar Al Masirah for Publishing, Distribution and Printing.
Electronic References, Websites	Many references from the Internet

Course Description Form

13.	Course Name:				
Agricultural machinery and equipment					
14.	Course Code:				
AH1911					
15.	Semester / Year:				
Semester 2023–2024					
16.	Description Preparation Date:				
25/1/2024					
17.	Available Attendance Forms:				
By attendance					
18.	Number of Credit Hours (Total) / Number of Units (Total)				
5/3					
19.	Course administrator's name (mention all, if more than one name)				
Name: Dr. Ghazwan Husam Tawfeeq Email: ag.ghazwan.hussam@uoanbar.edu.iq					
20.	Course Objectives				
Identifying the design and application engineering fundamentals of agricultural tractors, which enables students of the Department of Horticulture to deal with the use and working methods of machines found in orchards and agricultural fields.					
21.	Teaching and Learning Strategies				
<ol style="list-style-type: none"> 1. To learn about the basic principles of repair and maintenance of engines and means power transmission. 2. To learn about the basic principles of agricultural equipment and maintenance methods. 3. To learn about the engineering basics of machines, the development of their manufacture, and methods of dealing with these devices and equipment. 					
4. Course Structure					
Week	hrs./week	Subject	Education output	Education method	Assessment method
1	Theoretical part (3hrs) Practical part (2hrs)	Details and definition of tractors and farm work	Identify topics	Curriculum + assignment + video + data presentation + practical	Class discussion and daily exam

2	Theoretical part (3hrs) Practical part (2hrs)	Classification of tractors according to manufacturing and design concepts	Types of agricultural tractors	Curriculum + assignment + video + data presentation + practical	Class discussion and daily exam
3	Theoretical part (3hrs) Practical part (2hrs)	Definition and explanation of the components of the agricultural tractor	Main tractor parts	Curriculum + assignment + video + data presentation + practical	Class discussion and daily exam
4	Theoretical part (3hrs) Practical part (2hrs)	Engine classification, definition, and explanation of its components	Engines and their types	Curriculum + assignment + video + data presentation + practical	Class discussion and daily exam
5	Theoretical part (3hrs) Practical part (2hrs)	The method of ignition of fuel types and their effect on the performance of each type	Cycle of movement of pistons in an engine	Curriculum + assignment + video + data presentation + practical	Class discussion and daily exam
6	Theoretical part (3hrs) Practical part (2hrs)	Benefits of oil and components of the system. Types of engine cooling, their parts and operation	Engine lubrication device + Engine cooling system	Curriculum + assignment + video + data presentation + practical	Class discussion and daily exam
7	Theoretical part (3hrs) Practical part (2hrs)	The hydraulic system of the tractor + Power take-off shaft	installation and operation of the system	Curriculum + assignment + video + data presentation + practical	Class discussion and daily exam
8	Theoretical part (3hrs) Practical part (2hrs)	First monthly exam	First monthly exam		
9	Theoretical part (3hrs) Practical part (2hrs)	Moldboard plough + Disc plow and rotary disc	Installation and operation of the plough	Curriculum + assignment + video + data presentation + practical	Class discussion and daily exam
10	Theoretical part (3hrs) Practical part (2hrs)	Types of mechanical seeders and their work	Machine installation and work	Curriculum + assignment + video + data presentation + practical	Class discussion and daily exam
11	Theoretical part (3hrs) Practical part (2hrs)	Seedlings and planters	Its types and work	Curriculum + assignment + video + data presentation + practical	Class discussion and daily exam

12	Theoretical part (3hrs) Practical part (2hrs)	Tree shaker + potato puller + palm service equipment	Installation works for every machine	Curriculum + assignment + video + data presentation + practical	Class discussion and daily exam
13	Theoretical part (3hrs) Practical part (2hrs)	Use of the positioning system and methods of using it in agricultural tractors.	Smart and advanced devices to treat crops	Curriculum + assignment + video + data presentation + practical	Class discussion and daily exam
14	Theoretical part (3hrs) Practical part (2hrs)	Second monthly exam	Second monthly exam		

5. 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

6. Learning and Teaching Resources

Required textbooks (curricular books, if any)	<ol style="list-style-type: none"> 1. Agricultural tractors and the fundamentals of orchard mechanization. Written by Professor Dr. Abdul Rahman Ayoub Al-Sabbagh. 2. Basics of tractors and agricultural equipment. Written by Mr. Lotfi Hussein Muhammad A
Main references (sources)	كتاب ميكانيكا وهندسة الات زراعية PDF (mechaniclub.com)
Recommended books and references (scientific journals, reports...)	Agricultural mechanization in development. Guidelines for strategy formulation (fao.org)
Electronic References, Websites	Guide-to-good-ploughing.pdf (agrii.co.uk)

Course Description Form

1. Course Name:					
Plane Surveyi					
2. Course Code:					
AH1912					
3. Semester / Year:					
Semester2023-2024					
4. Description Preparation Date:					
25/1/2024					
5. Available Attendance Forms:					
Attendance (theoretical + practical)					
6. Number of Credit Hours (Total) / Number of Units (Total)					
60 hours / 3.5 units					
7. Course administrator's name (mention all, if more than one name)					
Name: Huthafia jaseem mohammd Email: ag.huthafia.Jaseem@uoanbar.edu.iq					
8. Course Objectives					
1. Understand the basic principles of mathematics 2. Learn about the scanning that collects information from the hospital 3. Read browser reading from private search data previously drawn browser reading			4. Learn about measuring methods with simple tools and how each tool works 5. Use some surveying devices and learn about their parts and function of each one		
9. Teaching and Learning Strategies					
Strategy		1. Traditional means of explanation and clarification. 2. Electronic means of explanation and clarification. 3. Field work. 4. Adopting student groups for field work to take measurements. 5. Use of surveying devices and equipment. 6. Show illustrative pictures of surveying equipment, its accessories, and survey work accessories. 7. Show illustrative pictures of various field operations.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5	Definition of surveying, types of surveys, requirements for a good survey, the importance of surveying in agriculture	Plane Surveying	A lecture with explanation and clarification	The exam
the second		Measurement systems, units	Plane Surveying	A lecture with	The exam

		measurement, errors mistakes		explanation and clarification	
the third		Tape scanning, station selection conditions, field book arrangement	Plane Surveying	A lecture with explanation and clarification	The exam
the fourth	5	Errors in survey work, ways to address them and overcome them	Plane Surveying	A lecture with explanation and clarification	The exam
Fifth	5	Drawing scale, its types, categories, and determining factors	Plane Surveying	A lecture with explanation and clarification	The exam
VI	First month exam - theoretical and practical				
Seventh	5	Areas, regular and irregular shapes, area with coordinates	Plane Surveying	A lecture with explanation and clarification	The exam
VIII	5	Leveling, its terminology, types of adjustment, and types of the leveling device	Plane Surveying	A lecture with explanation and clarification	The exam
Ninth	5	Types of settlement, phenomena of curvature, refraction and their treatment	Plane Surveying	A lecture with explanation and clarification	The exam
The tenth	5	Methods of calculating point levels and elevation differences, direct and indirect	Plane Surveying	A lecture with explanation and clarification	The exam
Eleventh	5	Making longitudinal sections, defining them, determining central axis, determining area of points, and drawing scale	Plane Surveying	A lecture with explanation and clarification	The exam
Twelveth	5	Calculating point levels, measuring distances, projecting the design and actual sections	Plane Surveying	A lecture with explanation and clarification	The exam
Thirteenth	Second month exam - theoretical and practical				
Fourteenth	5	Topographic map representation methods	Plane Surveying	A lecture with explanation and clarification	The exam
Fifteenth	5	Contour lines, methods of finding area and contour interval, finding contour lines, line properties	Plane Surveying	A lecture with explanation and clarification	The exam
11. Course Evaluation					
1- Rapid daily tests.					

- 2- Theoretical tests.
- 3- Practical tests.
- 4- Research and reports.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Al-Khafaf, Riyad Saleh, 2000, Foundati of Plane Surveying and Topograp College of Agriculture, University Mosul, Iraq
Main references (sources)	Al-Khafaf, Riyad Saleh, 2000, Foundati of Plane Surveying and Topograp College of Agriculture, University Mosul, Iraq
Recommended books and references (scientific journals, reports...)	Younis, Samir Muhammad, 2003-20 Agricultural Survey, Department Agricultural Engineering, Faculty Agriculture, Alexandria University, Egy
Electronic References, Websites	Local, regional and international scient books and journals concerned with fertility, especially within scientific virtual libraries.

Course Description Form

Course Name:					
Mathematics					
Course Code:					
AH1913					
Semester / Year:					
First Semester/2023–2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
in-person learning					
Number of Credit Hours (Total) / Number of Units (Total)					
30/2					
13. Course administrator's name (mention all, if more than one name)					
Name: Dr.Bilal Yaseen Taher Email: ag.bilal.yaseen@Uoanbar.edu.iq					
14. Course Objectives					
Course Objectives			A-Ability to understand the principle of mathematical functions B-Increasing the skills of students using it to solve the problems C-Ability the undergraduate students to use these skills in different fields. D-Ability the students to graph equations, inequalities and all function		
15. Teaching and Learning Strategies					
Strategy		A1. Analysis the problems and understand how can you be ability to solve it. A2. Testing these equations in the practical experimental. A3. Using equations to find variables in the problems. A4. Ability to convert the scales on the real number line. A5. Ability of student to evaluate the problems, and writing the scientific reports. A6. The student can acquire the practical and scientific experience his specialized field.it.			
16. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	Analysis the	The rate of change	Theoretical	questions ,

		problems and understand how can you be able to solve it.	function	Lectures,white board	discussions, and examples
Second	2	Ability to use suitable coordinates in the problems.	Cartesian coordinates	on the white board	questions , discussions, and examples
Third	2	Ability to use suitable coordinates in the problems.	Increments in coordinates	on the white board, Homework	questions , discussions, and examples
Fourth	2	Using slope to find the variables in the problems.	Slope and angles of inclination	on the white board	questions , discussions, and examples
Fifth	2	Exam of first month			
Sixth	2	special cases of slope of lines	Properties of parallel and perpendicular lines	on the white board	questions , discussions, and examples
Seventh	2	Boundary conditions for	Domain and Range of functions	on the white board	questions , discussions, and examples
Eighth	2	solving equation of Absolute values and inequalities	Absolute values for equations and inequalities	on the white board	questions , discussions, and examples
Ninth	2	solving equations of Exponential and logarithm	Exponential and logarithm functions	on the white board	questions , discussions, and examples
Tenth	2	Exam of second month			
Eleventh	2	solving equations of Trigonometric	Trigonometric functions	on the white board	questions , discussions, and examples
Twelfth	2	solving equations of Inverse Trigonometric.	Inverse Trigonometric functions	on the white board	questions , discussions, and examples
Thirteenth	2	Prove identities of Trigonometric functions	Identities of Trigonometric functions	on the white board, Homework	questions , discussions, and examples
Fourteenth	2	Testing these equations in the practical experimental.	Solve all homework and problems	on the white board, Homework and Application by computers	questions , discussions, and examples
		Exam of the third month			

17. Course Evaluation

Theory exam 30%, Practical Quiz 10%, Practical exam 10%, final exam 50%.
Final degree from 100%.

18. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Calculus, Thomas, 11Ed, 2006, Addison-Wesley, United States.
Recommended books and references (scientific journals, reports...)	Understanding Basic Calculus, S.K.Chung, Wolfram, 2007, Hong Kong.
Electronic References, Websites	https://en.wikipedia.org/wiki/Function_(mathematics)

Course Description Form

Course Name:					
General Plant					
Course Code:					
AH1914					
Semester / Year:					
2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
Presence					
22. Number of Credit Hours (Total) / Number of Units (Total)					
75 (5 hours weekly)					
23. Course administrator's name (mention all, if more than one name)					
Name: assistant prof. Bushra Shaker Jassim Email: ag.bushra.shaker@uoanbar.edu.iq					
24. Course Objectives					
Course Objectives <ul style="list-style-type: none"> • Teaching students the basics of science related to plant • Teaching students about the types of plant • Teach students how to treat plants with plant growth regulators 			<ul style="list-style-type: none"> • Teaching students the relationship between plant physiology and plant • Teaching students the applications of using plant morphology in the field of field crops • Teach students the type of plant 		
25. Teaching and Learning Strategies					
Strategy		A. Knowledge and Understanding A1- Enable students to acquire knowledge of the basics of science related to development. A2- Enable students to know the methods of controlling growth through treatment with plant growth regulators A3 - Know the means and types of plant growth regulators. A4- Enabling students to obtain knowledge and understanding of the plant's hormonal needs. A5 - Enable students to obtain knowledge and understanding of ways to improve hormonal growth.			
26. Course Structure					
Week	Hours	Required Learning	Unit or subject	Learning	Evaluation

		Outcomes	name	method	method
1	5	Knowledge terminology related plant growth regulation and their applications Using electronic media	plant cell	Lecture, discussion, reports, laboratories science movie	Quick and monitored exams, class activities and reports
2	5	Knowledge terminology related plant growth regulation and their applications Using electronic media	Prokaryotic and eukaryotic cell	Lecture, discussion, reports, laboratories science movie	Quick and monitored exams, class activities and reports
3	5	Knowledge terminology related plant growth regulation and their applications Using electronic media	Cell wall mitochondria, chloroplast	Lecture, discussion, reports, laboratories science movie	Quick and monitored exams, class activities and reports
4	5	Knowledge terminology related plant growth regulation and their applications Using electronic media	Plant structure, growth, development	Lecture, discussion, reports, laboratories science movie	Quick and monitored exams, class activities and reports
5	5	Knowledge terminology related plant growth regulation and their applications Using electronic media	Root and modified root	Lecture, discussion, reports, laboratories science movie	Quick and monitored exams, class activities and reports
6	5	First Exim	Exim	Lecture, discussion, reports, laboratories science movie	Quick and monitored exams, class activities and reports
7	5	Knowledge terminology related plant growth regulation and their applications Using electronic media	Stem and modified stem	Lecture, discussion, reports, laboratories science movie	Quick and monitored exams, class activities and reports
8	5	Knowledge terminology related plant growth regulation and their applications Using electronic media	Leaves and modified leaves	Lecture, discussion, reports, laboratories science movie	Quick and monitored exams, class activities and reports
9	5	Knowledge terminology related plant growth regulation and their applications Using electronic media	Tissue systems three	Lecture, discussion, reports, laboratories science movie	Quick and monitored exams, class activities and reports
10	5	Knowledge terminology related plant growth regulation and their applications Using electronic media	Xylem, phloem	Lecture, discussion, reports, laboratories science movie	Quick and monitored exams, class activities and reports
11	5	Knowledge terminology related plant growth regulation and their applications Using electronic media	Parenchyma chlorenchyma, sclerenchyma	Lecture, discussion, reports, laboratories science movie	Quick and monitored exams, class activities and reports
12	5	Knowledge terminology related plant growth regulation and their applications Using electronic media	Cell cycle	Lecture, discussion, reports, laboratories science movie	Quick and monitored exams, class activities and reports

13	5		Second Exim	Lecture, discussion, reports, laboratories science movie	Quick and mon exams, class acti and reports
14	5	Knowledge terminology related plant growth regula and their applications Using electronic mea	Transport in vascular plant	Lecture, discussion, reports, laboratories science movie	Quick and mon exams, class acti and reports
15	5	Knowledge terminology related plant growth regula and their applications Using electronic mea	photosynthesis= Cellular respiration	Lecture, discussion, reports, laboratories science movie	Quick and mon exams, class acti and reports

27. Course Evaluation

Quick daily exams.

- Monthly exams (two or more).
- Evaluation of the students' classroom activity
- Assessments on writing research, scientific reports and homework
- Direct oral exams
- Classroom and home activities

28. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General Botany
Main references (sources)	Botany
Recommended books and references (scientific journals, reports...)	Journal of botany
Electronic References, Websites	https://www.barnesandnoble.com/b/books/biology-life-sciences/botany/_/N-29Z8q8Z18ca

Course Description Form

1. Course Name:	
Computer / 1	
2. Course Code:	
AH1915	
3. Semester / Year:	
First/ 2023–2024	
4. Description Preparation Date:	
25/1/2024	
5. Available Attendance Forms:	
Personal presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
48/ 3	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Pro. Dr. Ahmed Abdulrahman Majid Email: ag.ahmed.abd-rahmman@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	<ol style="list-style-type: none"> 1. Learn about computer terms and definitions 2. University degree in computer history and language 3. Knowing the computer's components, types, and uses. 4. Entering the world of viruses and knowing how to benefit from them on the computer. 5. Working on the computer through the Windows interface
9. Teaching and Learning Strategies	
Strategy	<p>Knowledge and understanding Learn about the capabilities of printing, inserting images, tables, storing, and writing formatting.</p> <p>Subject-specific skills: Students can develop skills by gaining sufficient experience to produce Microsoft Word files in a sophisticated and artistic style.</p> <p>Teaching and learning methods: The student relies for his understanding and learning on in-person lectures during this academic year</p> <p>Evaluation methods: Through daily and monthly exams, homework, oral exams, attendance, and various activities</p> <p>thinking skills: The student relies on linking the topics of the lectures in order to provide a model answer that can benefit him in the monthly exams.</p> <p>General and transferable skills (other skills related to employability and personal development). The student can study the curriculum topics in a practical way to understand and comprehend the curriculum lectures through his visit to the laboratory.</p>
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3		Computer basics	(theoretical)	Daily exam
2	3		Electronic computer (computer)	(theoretical)	Daily exam + homework
3	3		Classification of computers based on operating system	(theoretical)	Daily exam + homework
4	3		Computer's components	(theoretical)	Monthly exam
5	3		Computer box	(theoretical)	Daily exam
6	3		Ports	(theoretical)	Daily exam + homework
7	3		Number systems	(theoretical)	Daily exam + homework
8	3		Computer security and software licenses	(theoretical)	Monthly exam
9	3		Electronic hacking	(theoretical)	Daily exam
10	3		Operating Systems	(practical)	Daily exam + homework
11	3		Windows operating system	(practical)	Daily exam + homework
12	3		Taskbar	(practical)	Monthly exam
13	3		Performing operations on windows	(practical)	Daily exam
14	3		control Board	(practical)	Daily exam + homework
15	3		Add an account	(practical)	Daily exam + homework
16	3		Installing programs	(practical)	Monthly exam

11. Course Evaluation

Monthly exam 60%, daily exam 20%, homework 10%, attendance 10%.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Computer applications book Microsoft Word
Main references (sources)	My practical experience is in the computer field
Recommended books and references (scientific journals, reports...)	-
Electronic References, Websites	-

Course Description Form

1. Course Name:					
English Language/1					
2. Course Code:					
AH1916					
3. Semester / Year: 2023-2024					
SECOND / 2023-2024					
4. Description Preparation Date:					
25/1/2024					
5. Available Attendance Forms:					
DAYLY					
6. Number of Credit Hours (Total) /					
Number of Units (Total) 1 HOUER-1 UNIT					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.ANMAR NAZAR HASAN Email:ag.anmar.nizar@uoanbar.edu.iq					
8. Course Objectives English Language/1					
Course Objectives					
9. Teaching and Learning Strategies					
<p>a. Developing teaching programs in coordination with higher department</p> <p>b. Develop teaching curricula similar to the work environment.</p> <p>c. Sending students to departments and directorates for the purpose of conducting summer application.</p> <p>d. Assigning students to conduct research and reports.</p> <p>e. Assigning students to go to the library and collect resources on the topic</p> <p>f. Implementing practical lessons in laboratories, each according to its specialty</p>					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretic 1 hour	English Language/1	Hello	Theoretical 1 hour	Daily and quarterly exam activity
2	Theoretic 1 hour	English Language/1	Your world	Theoretical 1 hour	Daily and quarterly exam activity
3	Theoretic 1 hour	English Language/1	All about you	Theoretical 1 hour	Daily and quarterly exam activity
4	Theoretic	English Language/1	Family and frien	Theoretical 1	Daily and

	1 hour			hour	quarterly exam activity
5	Theoretical 1 hour	English Language/1	The way I live	Theoretical 1 hour	Daily and quarterly exam activity
6	Theoretical 1 hour	English Language/1	Every day	Theoretical 1 hour	Daily and quarterly exam activity
7	Theoretical 1 hour	English Language/1	My favorite's	Theoretical 1 hour	Daily and quarterly exam activity
8	Theoretical 1 hour	English Language/1	Where I live	Theoretical 1 hour	Daily and quarterly exam activity
9	Theoretical 1 hour	English Language/1	Times past	Theoretical 1 hour	Daily and quarterly exam activity
10	Theoretical 1 hour	English Language/1	We had a great time	Theoretical 1 hour	Daily and quarterly exam activity
11	Theoretical 1 hour	English Language/1	I can do that	Theoretical 1 hour	Daily and quarterly exam activity
12	Theoretical 1 hour	English Language/1	Please and thank you	Theoretical 1 hour	Daily and quarterly exam activity
13	Theoretical 1 hour	English Language/1	Here and now	Theoretical 1 hour	Daily and quarterly exam activity

11. Course Evaluation

- a. Daily and monthly tests through questions on the subject of the subject
- b. Grades on students' participation in research and scientific reports
- c. Discussing research and reports, presenting them, and giving them a grade
- d. Conducting tests during the application period and asking questions to students to determine the extent of their understanding of the subject
- e. Conduct a discussion of reports at the end of the semester to find out students' choices in courses
- f. Writing reports after completing the application period to determine the extent to which students were able to diagnose problems and how to find solutions

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	NEW HEADWAY beginner
Main references (sources)	NEW HEADWAY beginner
Recommended books and references (scientific journals, reports...)	NEW HEADWAY beginner
Electronic References, Websites	You Tub Chanel

Course Description Form

1. Course Name:					
Human rights					
2. Course Code:					
AH1917					
3. Semester / Year:					
SEMESTER 2023-2024					
4. Description Preparation Date:					
25/1/2024					
5. Available Attendance Forms:					
Presence					
6. Number of Credit Hours (Total) / Number of Units (Total)					
30 hours 2 units per week					
7. Course administrator's name (mention all, if more than one name)					
Name: abd al salam khalaf Email: abd.khalaf@uoanbar.edu.iq					
8. Course Objectives					
1- Preparing students who believe in human rights and democracy 2- Instilling national values in the individual and society and combating forms of corrupti			3- Helping in writing scientific research objectively 4- Knowledge of the general rights and freedoms of the individual and society 1- Practical application of public rights and freedom		
9. Teaching and Learning Strategies					
Strategy	1- Enabling students to obtain the intellectual framework A believer in the strategy of human rights and public freedoms 2- Preparing a generation that is conscious and aware of the importance of rights and freedoms 3- Instilling the principles of patriotism and preserving it 4- Developing a culture of human rights and democracy among the individual and society 1- Developing students' cognitive awareness of the importance of human rights And democracy				
10. Course Structure					
Week	Hours	Required Learning	Unit or subject	Learning	Evaluation

		Outcomes	name	method	method
1	2	Understanding an	Definition of human	My presence	the exam
2	2	learning	rights	My presence	the exam
3	2	skills developmen	A historical overview of	My presence	the exam
4	2	Correct spelling	human rights	My presence	the exam
5	2	Know the errors	Human rights in heaven	My presence	the exam
6	2	Knowledge and	religions	My presence	the exam
7	2	awareness	The most important pu	My presence	the exam
8	2	Learn to parse	rights and freedoms	My presence	the exam
9	2	Learn to parse	Human rights violations	My presence	the exam
10	2	Knowledge and	society	My presence	the exam
11	2	perception	Supporting internationa	My presence	the exam
12	2	Learn Arabic	provisions and	My presence	the exam
13	2	Proper	conventions	My presence	the exam
14	2	pronunciation	For human rights	My presence	the exam
15	2	Learn the	Applications in the gene	My presence	the exam
		differences	rights of the individual	My presence	the exam
		Brief and learn	Administrative corrupti	My presence	the exam
		Discrimination	and ways to combat it	My presence	the exam
		Understanding an	Concepts of instilling	My presence	
		perception	national values in socie		
		The right style	Democracy (definition -		
			concept)		
			Democracy (historical		
			stages)		
			Difficulties in		
			implementing democra		
			in society		
			Distinguishing between		
			rights and democracy		
			Characteristics of a		
			democratic system		
			Advantages and		
			disadvantages of		
			democracy		
			Democracy applications		
			The election		
			Democratic Constitutio		

11. Course Evaluation

1- Through daily and monthly exams, homework, oral exams, attendance, and class activities.

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:					
Principles of field crops					
2. Course Code:					
AH1910					
3. Semester / Year:					
Autumn, 2023-2024					
4. Description Preparation Date:					
25/1/2024					
5. Available Attendance Forms:					
presence only					
6. Number of Credit Hours (Total) / Number of Units (Total) :					
45 hours per semester/3 hours per week					
7. Course administrator's name (mention all, if more than one name)					
Name: Ahmed Shehab Abdullah Ramadan Email: ag.ahmed.shehab@uoanbar.edu.iq					
8. Course Objectives					
Course Objectives			Teaching students the basics of field crop science from both theoretical and applied aspects, providing them with the required knowledge in growing field crops and how to deal with, manage, produce and improve them, and mastering the various crop service operations from planting to maturity and post-harvest operations, in addition to studying how to preserve and maintain the soil, sustaining its productivity, and mastering modern irrigation methods.		
9. Teaching and Learning Strategies					
Strategy		<ul style="list-style-type: none"> -Education strategy, collaborative concept planning. -Education strategy brainstorming. -Education strategy notes series 			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Introduction to crop science and recent statistics on food production in			Weekly, monthly and daily exams and

		the world		Theoretical	exam End of year.
2	3	Morphological characteristics of field crop families			
3	3	Methods of classifying field crops			
4	3	Factors affecting crop production (heat, light, and CO ₂)			
5	3	Humidity, rain and water rating			
6	3	Semester exam			
7	3	Plowing and preparing the land for agriculture			
8	3	Crop service factors			
9	3	Seed and grain grading science			
10	3	Types of weeds and methods of its combating			
11	3	Agricultural cycles, their types and benefits			
12	3	Principles of crop breeding and improvement			
13	3	Stages of production and multiplication of seeds improved			
14	3	A brief idea about the most important crops grown in Iraq in the form of tables			
15	3	Semester exam			

11. Course Evaluation

The distribution is as follows: 15 marks for the monthly and daily exams and participation for the theoretical aspect for the first month, 15 marks for the monthly and daily exams and participation for the theoretical aspect for the second month, and 30 marks for the theoretical final for the final exams.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1-Principles of field crops: Dr. Majeed Mohsen Al-Ansari and others, 1891, Higher Education Press, Iraq. 2-Field crop production: Dr. Majeed Mohsen Al-Ansari 1891, Dar Al-Kutub Press - University, Mosul. 3-Production and improvement of field crops: Dr. Abdul Hamid Ahmed Al-Younis, 1883, Dar Al-
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	Kutub Directorate for Printing and Publishing - Baghdad. 4-Understanding crop production Dr. Hatem Jabbar Attia and Dr. Karima Muhammad Wahib 1898, Higher Education and Scientific Research Press.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Scientific research
Electronic References, Websites	Google

Course Description Form

Course Name:					
Soil principles					
Course Code:					
AH1911					
Semester / Year:					
Semester/2, 2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
Attendance (theoretical + practical)					
29.Number of Credit Hours (Total) / Number of Units (Total)					
60 hours / 3.5 units					
30. Course administrator's name (mention all, if more than one name)					
Name: khaleel jameel Farhan Email: khaleel.Farhan@uoanbar.edu.iq					
31. Course Objectives					
1. Identify the soil, which is the upper part of the earth's crust. 2. Understanding the mechanism of soil formation and development. 3. Identify the physical, chemical, fertility and biological characteristics of soil for each type of soil.			4. Learn about analysis methods for each soil characteristic. 5. Use some laboratory equipment and field tools.		
32. Teaching and Learning Strategies					
Strategy		1. Traditional means of explanation and clarification. 2. Electronic means of explanation and clarification. 3. Field work. 4. Adopting student groups for field work to take measurements. 5. Use of surveying devices and equipment. 6. Show illustrative pictures of the devices and their accessories.			
33. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Rocks and Minerals	Soil principles	A lecture with explanation and clarification	The exam

2	5	Soil development and formation	Soil principles	A lecture with explanation and clarification	The exam
3	5	Soil Physical Properties (Soil Texture)	Soil principles	A lecture with explanation and clarification	The exam
4	5	Soil Structure	Soil principles	A lecture with explanation and clarification	The exam
5	5	Soil Air	Soil principles	A lecture with explanation and clarification	The exam
6	First month exam - theoretical and practical				
7	5	Soil water	Soil principles	A lecture with explanation and clarification	The exam
8	5	Problems with accumulation of salts the soil	Soil principles	A lecture with explanation and clarification	The exam
9	5	Colloids & Chemical Properties	Soil principles	A lecture with explanation and clarification	The exam
10	5	Organic Colloids	Soil principles	A lecture with explanation and clarification	The exam
11	5	Preparation of saturated soil paste	Soil principles	A lecture with explanation and clarification	The exam
12	5	soil biological properties	Soil principles	A lecture with explanation and clarification	The exam
Thirteenth	Second month exam - theoretical and practical				

14	5	Important nutrients in soil and their relations to plant growth	Soil principles	A lecture with explanation and clarification	The exam
15	5	Estimation of organic matter	Soil principles	A lecture with explanation and clarification	The exam

34. Course Evaluation

- 1- Rapid daily tests.
- 2- Theoretical tests.
- 3- Practical tests.
- 4- Research and reports.

35. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Soil principles// Prof. Dr. Nour El-Din Shawqi
Main references (sources)	Soil principles/Abdullah Najm Al-Ani
Recommended books and references (scientific journals, reports...)	Soil salinity / Ahmed Haider Al-Zubaidi Soil fertility / Kazem Mashhout Soil Chemistry / Kazem Mashhout Soil survey and classification / Walid Al-Akidi Soil physics/Mahdi Ibrahim Odeh Soil principles. General Organization for Technical Education and Vocational Training. Kingdom of Saudi Arabia
Electronic References, Websites	Local, regional and international scientific books and journals concerned with principles of soil science, especially with scientific and virtual libraries

Course Description Form

1. Course Name:					
Organic chemistry					
1. Course Code:					
AH1912					
2. Semester / Year:					
first semester, 2023-2024					
3. Description Preparation Date:					
2024-1-25					
4. Available Attendance Forms:					
Attendance live					
5. Number of Credit Hours (Total) / Number of Units (Total)					
Number of Credit Hours (75) / Number of Units (3.5)					
6. Course administrator's name (Dr. Maher Ahmed Abed)					
Name: Dr. Maher Ahmed Abed					
Email:					
7. Course Objectives					
Course Objectives			Explanation of cyclic and open aphytic compounds Classification of active compounds according to active group Preparation of some organic compounds Naming organic compounds		
8. Teaching and Learning Strategies					
Strategy					
9. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2+3	Organic chemistry	Preparation of cyclic acid - its purpose - scientific idea - method of work - calculations - drawing of the device	lectures Theo. And EXP.	Daily and quart exam
2	2+3	Organic chemistry	Preparation of alkyl halide - purpose of the experiment - scientific idea - method of work - calculations - drawing of the device.	lectures Theo. And EXP.	Daily and quart exam
3	2+3	Organic chemistry	Alcohols - purpose of the	lectures	Daily and quart

			experiment - scientific idea - method of work - calculations - drawing of the device.	Theo. And EXP.	exam
4	2+3	Organic chemistry	Acetone - purpose of the experiment - scientific idea - method of work - calculations - drawing of the device. First month exam	lectures Theo. And EXP.	Daily and quart exam
5	2+3	Organic chemistry	Review	lectures Theo. And EXP.	Daily and quart exam
6	2+3	Organic chemistry	Review	lectures Theo. And EXP.	Daily and quart exam
7	2+3	Organic chemistry	First month exam	lectures Theo. And EXP.	Daily and quart exam
8	2+3	Organic chemistry	Study of the properties of aldehydes and ketones - introduction - method of work - calculations - drawing of the device	lectures Theo. And EXP.	Daily and quart exam
9	2+3	Organic chemistry	Preparation of caroxylic acid - purpose of the experiment - type of reaction - method of work - calculations - drawing of the device.	lectures Theo. And EXP.	Daily and quart exam
10	2+3	Organic chemistry	Preparing esters - purpose of the experiment - method of work - calculations - drawing of the device.	lectures Theo. And EXP.	Daily and quart exam
11	2+3	Organic chemistry	Preparing aspirin - purpose of the experiment - method of work - calculations - drawing of the device.	lectures Theo. And EXP.	Daily and quart exam
12	2+3	Organic chemistry	Review	lectures Theo. And EXP.	Daily and quart exam
13	2+3	Organic chemistry	Review	lectures Theo. And EXP.	Daily and quart exam
14	2+3	Organic chemistry	Second month exam	lectures Theo. And EXP.	Daily and quart exam
15	2+3	Organic chemistry	Review	lectures Theo. And EXP.	Daily and quart exam

10. 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

11. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Organic chemistry for agriculture college students
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Types of Chemical Bonds. Dummies. Retrieved January 4, 2021, from
Electronic References, Websites	-

Course Description Form

Course Name:					
Principles of Animal production					
Course Code:					
AH1913					
Semester / Year:					
SPRING 2023–2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
IN CLASS					
Number of Credit Hours (Total) / Number of Units (Total):					
5HOURS/3.5 UNITS					
13. Course administrator's name (mention all, if more than one name)					
Name: Assist. Prof. Dr. Mohammed A. AL-Bayar Email: ag.mohammed.ala@uoanbar.edu.iq					
14. Course Objectives					
Course Objectives			1- know importance of animal production economy 2- know cattle and sheep breeds 3- know important methods for animals management 4- know principles on animal feeding 5- know field methods for animal field management 6- know principles of animal physiology		
15. Teaching and Learning Strategies					
Strategy		Teaching therological parts in class by using data show and some new methods, while practical part teach in animal field			
16. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	5	Local and international cattl breeds	Principles of Iraqi and international cattle breeds	Power point and PDF file lecture	Quiz
Second	5	Local and international sheep breeds	Principles of Iraqi and international sheep breeds	Power point and PDF file lecture	Practical examination
Third	5	Reproduction in animals	Male and female reproduction organs	Power point and practical	Quiz

				study	
Fourth	5	Animal nutrition	Feed contents, food analysis	Power point and PDF file lecture	Quiz
Fifth	5	Milk production	Milking machines and milk secretion	Power point and practical study	Quiz
Sixth	5	Poultry production	Principle of poultry types and poultry production	Power point and practical study	Quiz
Seventh	5	Milk secretion	Milk secretion physiology	Power point and practical study	Quiz

17. 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

18. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Principles of farm animals production
Main references (sources)	Principles of farm animals production
Recommended books and references (scientific journals, reports...)	Cattle management Sheep and goat management
Electronic References, Websites	Youtube.com Springer.com

Course Description Form

Course Name:					
Statistics					
Course Code:					
AH1914					
Semester / Year:					
Spring, 2023-2024					
Description Preparation Date:					
25 /1/ 2024					
Available Attendance Forms:					
attendance is according to the weekly lecture schedule					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / Units 3.5					
Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. Maath Mohey Mohammed Shareef Email: ag.maath.mohey@uoanbar.edu.iq					
Course Objectives					
Course Objectives:					
- Teach students the importance of statistics.		.....		
- Teaching students about the sciences related to statistics		.....		
. Study statistical symbols and apply them practically.		.....		
4- Study of the graphical representation of agricultural data					
5- Identify measures of central tendency					
6- Study of dispersion metrics					
.					
Teaching and Learning Strategies					
Strategy: Follow the lecture method and use modern presentation methods. Group dialogues . Direct dialogue with students by asking them questions . Brainstorming strategy. Cooperative education strategy .					
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	1- Computer 2-Modern mobile device 3-Observations and field applications	A brief history statistics, relationship of statistics with other sciences	Electronic lectures and practical application laboratories and fields	Questions, discussions and examples

Second	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Understand the type of data and ways to collect and display it	Electronic lecture and application laboratories fields	Questions, discussions and examples
Third	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Statistical variables and symbols	Electronic lecture and application laboratories fields	Questions, discussions and examples
Fourth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Data collection and presentation	Electronic lecture and application laboratories fields	Questions, discussions and examples
Fifth	2	First month exam			
Sixth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Measures of central tendency (arithmetic mean, median, and mode) for both grouped and ungrouped data	Electronic lecture and application laboratories fields	Questions, discussions and examples
Seventh	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Scales of central tendency exercises	Electronic lecture and application laboratories fields	Questions, discussions and examples
Eighth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Scatterometers	Electronic lecture and application laboratories fields	Questions, discussions and examples
Ninth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Applications of measures of central tendency	Electronic lecture and application laboratories fields	Questions, discussions and examples
Tenth	2	Second month exam			
Eleven	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Principles of probability theory	Electronic lecture and application laboratories fields	Questions, discussions and examples
Twelfth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Potential exercises	Electronic lecture and application laboratories fields	Questions, discussions and examples
Thirteenth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Normal distribution of the data	Electronic lecture and application laboratories fields	Questions, discussions and examples

Fourteenth	2	1- Computer 2-Modern mobile device 3-Observations at field applications	Applications to normal distribution data	Electronic lectu and practi application laboratories a fields	Questions, discussions and examples
Fifteen	2	Third month exam			
Course Evaluation					
1- Monthly exams. 2- Rapid exams . 3- Evaluation through classroom activity. 4- By preparing scientific reports and taking advantage of information networks. 5- Final exams.					
Learning and Teaching Resources					
Required textbooks (curricular books, if a			Basics of Statistics 2016 Dr. Nazim Younis Abd. Principles of Statistics, Ahmed Abdel Samie, Medical 2008 Principles of statistics. Adnan Ghanem Al-Makhul 200		
Main references (sources)			Recent articles from the Internet and specialized scient journals		
Recommended books and references (scientific journals, reports...)			History of statistics . 2021 Prof . Khaled Hamed Hassan		
Electronic References, Websites					

Course Description Form

Course Name:					
Principles of agricultural economics					
Course Code:					
AH 1915					
Semester / Year:					
Second semester, 2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
regularity (attendance)					
Number of Credit Hours (Total) / Number of Units (Total)					
75 Hour / 3.5 unit					
Course administrator's name (mention all, if more than one name)					
Name: Eyid Abbas Abdalltef					
Email: ag.eyid.abbas@uoanbar.edu.iq					
Course Objectives					
Course Objectives		<p>A- Providing the student with the basic principles of agricultural economics and general economic principles.</p> <p>B - Introducing students to the most important economic activities and functions carried out by the agricultural economy.</p> <p>C- Introducing the most important branches and specializations of agricultural economics.</p> <p>D- Introducing the economic and standard criteria and foundations that the agricultural economy relies on in production.</p> <p>E - Introduce the student to the relationship the agricultural economy with other economic productive sectors.</p>			
Teaching and Learning Strategies					
Strategy		<p>A theoretical clarification of the vocabulary of the subject, using data to understand the scientific subject</p> <p>Using graphs in scientific material, student participation in lectures</p> <p>Conduct daily and monthly tests.</p>			
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge and understanding Skill for the subject	Economics, the most important basic branches, and	theoretically Practical vocabulary	Examination, reporting

			relationship of agricultural economic to it.	Subject	
2	5	Knowledge and understanding Skill for the subject	The most important branches of agricultural economics and the economic problem and its characteristics.	theoretically Practical vocabulary Subject	Examination, reporting
3	5	Knowledge and understanding Skill for the subject	The role and status agricultural economic activity + aspects of economic life.	theoretically Practical vocabulary Subject	Examination, reporting
4	5	Knowledge and understanding Skill for the subject	Economic resources, invested capital and agricultural costs.	theoretically Practical vocabulary Subject	Examination, reporting
5	5	Knowledge and understanding Skill for the subject	Analysis of agricultural costs + agricultural income.	theoretically Practical vocabulary Subject	Examination, reporting
6	5	Knowledge and understanding Skill for the subject	Economics of agricultural production production function and types.	theoretically Practical vocabulary Subject	Examination, reporting
7	5	Knowledge and understanding Skill for the subject	Exam	theoretically Practical vocabulary Subject	Examination, reporting
8	5	Knowledge and understanding Skill for the subject	stages of agricultural production	theoretically Practical vocabulary Subject	Examination, reporting
9	5	Knowledge and understanding Skill for the subject	The isoquant curve, properties, and how to draw it.	theoretically Practical vocabulary Subject	Examination, reporting
10	5	Knowledge and understanding Skill for the subject	Replacement or replacement and reaching the low cost.	theoretically Practical vocabulary Subject	Examination, reporting
11	5	Knowledge and understanding Skill for the subject	Agricultural prices and types of fluctuations.	theoretically Practical vocabulary Subject	Examination, reporting
12	5	Knowledge and understanding Skill for the subject	The demand for agricultural products, concept, fact	theoretically Practical vocabulary	Examination, reporting

			affecting it, and the demand schedule and curve.	Subject	
13	5	Knowledge and understanding Skill for the subject	The supply of agricultural products, concept, the factors affecting it, and the supply schedule and curve.	theoretically Practical vocabulary Subject	Examination, reporting
14	5	Knowledge and understanding Skill for the subject	The interaction demand And supply in setting prices.	theoretically Practical vocabulary Subject	Examination, reporting
15	5	Knowledge and understanding Skill for the subject	Exam	theoretically Practical vocabulary Subject	Examination, reporting

Course Evaluation

Daily exam, submission of reports, semester exam, final exam (total score 100)

Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

Principles of agricultural economics –
Dr. Abdul Wahab Matar Al-Dahri - College of Agriculture - University of Baghdad - 1998

Recommended books and references (scientific journals, reports...)

* Principles of Agricultural Economics/Dr. Salem Tawfiq Al-Najafi - College of Administration and Economics - University of Mosul 2001.
* Principles of agricultural economics_
Dr. Raad Eidan - College of Administration and Economics - Al-Mustansiriya University 2019

Electronic References, Websites

Course Description Form

1. Course Name:					
Engineering Drawing					
2. Course Code:					
AH 1916					
3. Semester / Year:					
first semester, 2023-2024					
4. Description Preparation Date:					
25\1\2024					
5. Available Attendance Forms:					
Attendance					
6. Number of Credit Hours (Total) / Number of Units (Total)					
45\2					
7. Course administrator's name (mention all, if more than one name)					
Name: Marwa Yass Khudair Email: ag.marwa.yass@uoanbar.edu.iq					
8. Course Objectives					
<p>Basic Understanding: Introducing students to the fundamental concepts of geometric drawing, including symbols, dimensions, and scales. Analysis and Interpretation: Empowering students to analyze and interpret geometric drawings and diagrams efficiently. Technical Skills Development: Enhancing students' skills in using geometric drawing tools such as traditional tools like ruler and compass.</p>					
9. Teaching and Learning Strategies					
Strategy	<p>Interactive Teaching: Using classroom discussions and workshops to enhance interaction among students and exchange of ideas. This helps deepen students' understanding of geometric drawing concepts and their applications.</p> <p>Flipped Classroom: Students review theoretical content outside the classroom, while class time is allocated for practical applications.</p> <p>Cooperative Learning: Encouraging students to work in groups to promote collaboration and knowledge exchange, leading to improved communication and teamwork skills.</p> <p>Utilization of Diverse Resources: Providing a wide range of educational resources, including instructional videos, e-books, and scientific articles, to enhance understanding and expand knowledge.</p>				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Absolute Value	Engineering drawing	Attendance	Class assignment

2	2	Learning Draw Scale and Importance	Engineering drawing	Attendance	Class assignm
3	2	Introduction Types of L and Engineer Drawing	Engineering drawing	Attendance	Class assignm
4	2	Learning Bisecting	Engineering drawing	Attendance	Class assignm
5	2	Geometric Operations	Engineering drawing	Attendance	-
6	2	Parallelism Dividing L Equally and Different Proportions	Engineering drawing	Attendance	Class assignm
7	2	Exam	Engineering drawing	Attendance	Class assignm
8	2	Learning Triangular, Quadrilateral, Pentagon Sha	Engineering drawing	Attendance	Class assignm
9	2	Learning Hexagonal, Heptagonal, Octagonal Sha	Engineering drawing	Attendance	Class assignm
10	2	Learning Nonagon Decagon Sha	Engineering drawing	Attendance	-
11	2	Learning Individual Polygons	Engineering drawing	Attendance	Class assignm
12	2	Learning Pa Polygons	Engineering drawing	Attendance	Class assignm
13	2	oval	Engineering drawing	Attendance	Class assignm
14	2	exam	Engineering drawing	Attendance	-

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)	Engineering drawing
Main references (sources)	Learning Applications of Engineering Draw
Recommended books and references (scientific journals, reports...)	Engineering Operations Handbook
Electronic References, Websites	-Geometry Learning Pages

Course Description Form

Course Name:					
Computer/ 2					
Course Code:					
AH1917					
Semester / Year:					
second/ 2023–2024					
Description Preparation Date:					
2024/1/25					
Available Attendance Forms:					
Personal presence					
Number of Credit Hours (Total) / Number of Units (Total)					
48/ 3					
Course administrator's name (mention all, if more than one name)					
Name: Asst. Pro. Dr. Ahmed Abdulrahman Majid					
Email: ag.ahmed.abd-rahmman@uoanbar.edu.iq					
Course Objectives					
Course Objectives		<ol style="list-style-type: none"> 1. Knowing how to operate Microsoft Word 2. Study the basic principles of using the mouse and keyboard 3. Study how to work on Microsoft Word 4. Learn how to store files in Microsoft Word format 			
Teaching and Learning Strategies					
Strategy		<p>Knowledge and understanding Learn about the capabilities of printing, inserting images, tables, storing, and writing formatting.</p> <p>Subject-specific skills: Students can develop skills by gaining sufficient experience to produce Microsoft Word files in a sophisticated and artistic style.</p> <p>Teaching and learning methods: The student relies for his understanding and learning on in-person lectures during this academic year</p> <p>Evaluation methods: Through daily and monthly exams, homework, oral exams, attendance, and various activities</p> <p>thinking skills: The student relies on linking the topics of the lectures in order to provide a model answer that can benefit him in the monthly exams.</p> <p>General and transferable skills (other skills related to employability and personal development). The student can study the curriculum topics in a practical way to understand and comprehend the curriculum lectures through his visit to the laboratory.</p>			
19. Course Structure					
Week	Hours	Required Learning	Unit or subject name	Learning method	Evaluation method

		Outcomes			
1	3		Turning The Calculator On And Off	(practical)	Daily exam
2	3		Learn About Windows Principles	(practical)	Daily exam + homework
3	3		How To Run Microsoft Word	(practical)	Daily exam + homework
4	3		File Tab Details	(practical)	Monthly exam
5	3		Home Tab Details	(practical)	Daily exam
6	3		Insert Tab Details	(practical)	Daily exam + homework
7	3		Page Layout Tab Details	(practical)	Daily exam + homework
8	3		References Tab Details	(practical)	Monthly exam
9	3		Messages Tab Details	(practical)	Daily exam
10	3		Review Tab Details	(practical)	Daily exam + homework
11	3		View Tab Details	(practical)	Daily exam + homework
12	3		Details Tab Design In The Table	(practical)	Monthly exam
13	3		Layout Tab Details In The Table	(practical)	Daily exam
14	3		Format Tab Details In Image	(practical)	Daily exam + homework
15	3		Abbreviations In The Program	(practical)	Daily exam + homework
16	3		Professionalism Using The Program	(practical)	Monthly exam

20. Course Evaluation

Monthly exam 60%, daily exam 20%, homework 10%, attendance 10%.

21. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Computer applications book Microsoft Word
Main references (sources)	My practical experience is in the computer field
Recommended books and references (scientific journals, reports...)	-
Electronic References, Websites	-

Course Description Form(The Second Stage)

36. Course Name:	
Crimes of the defunct Baath Party	
37. Course Code:	
AH1920	
38. Semester / Year:	
SEMESTER 2023-2024	
39. Description Preparation Date:	
25/1//2024	
40. Available Attendance Forms:	
Presence	
41. Number of Credit Hours (Total) / Number of Units (Total)	
30 hours 2 units per week	
42. Course administrator's name (mention all, if more than one name)	
Name: mohammed kareem shaker Email: ag.mohammed.kareem@uoanbar.edu.iq	
43. Course Objectives	
1-Preparing educated students with correct ideas 2- Instilling noble values and morals	3- Helping in writing scientific research objectives 4- Know the facts and not falsify them 5- Knowing the repressive methods used by the former regime
44. Teaching and Learning Strategies	
Strategy	1- Enabling students to obtain the intellectual framework 2- Preparing students with a correct culture 3- Instilling and preserving the principles of patriotism 4- Developing the intellectual side of students 5- Vocabulary formulation and its absence 6- Expanding cognitive awareness
45. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding an	Violation of rights a	My presence	the exam
2	2	learning	freedoms	My presence	the exam
3	2	skills developmen	A descriptive overview	My presence	the exam
4	2	Know the facts	of political systems	My presence	the exam
5	2	Knowledge of sou	The Baathist regime's	My presence	the exam
6	2	principles	violation of rights and	My presence	the exam
7	2	Knowledge and	freedoms	My presence	the exam
8	2	awareness	The impact of the	My presence	the exam
9	2	Learn high values	behavior of the forme	My presence	the exam
10	2	raising awareness	Baathist regime on	My presence	the exam
11	2	Knowledge and	the society	My presence	the exam
12	2	perception	The impact of the	My presence	the exam
13	2	Crystallization of	transitional period	My presence	the exam
14	2	ideas	The psychological fiel	My presence	the exam
15	2	Mind developmen	+ the social field	My presence	the exam
		Learn the facts	Religion and state	My presence	the exam
		Brief and learn	First month exam	My presence	
		Discrimination	Culture, media, and th		
		Understanding an	militarization of socie		
		perception	The impact of		
		The right style	oppression and wars		
			the environment and		
			population		
			The use of		
			internationally		
			prohibited weapons a		
			environmental polluti		
			Scorched earth policy		
			drying of the marshes		
			Destruction of the		
			agricultural and anim		
			environment		
			Mass graves		
			Second month exam		

46. Course Evaluation

1- Through daily and monthly exams, homework, oral exams, attendance, and

2- class activities.

47. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Curriculum Crimes of the former Baath regime
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name:	
Principles of Microbiology	
Course Code:	
AH1921	
Semester / Year:	
first Semester, 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75	
13. Course administrator's name (mention all, if more than one name)	
Name: Ali Ameen Yaseen Email: ag.ali.ameen@uoanbar.edu.iq	
14. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> 1- Introduction to microbiology 2- Identify the location of microorganisms among living organisms. And studying the characteristics of microorganisms – such as cultural characteristics, phenotypic appearance. Metabolic properties 3- Studying the structures and anatomy of microorganisms and knowing the functions of these structures. Studying microbial feeding systems, identifying culture media, growth factors, preserving microbial cultures, growth phases, and methods for estimating microbial growth. 4- Study of microbial genetics, nucleic acid synthesis, DNA replication, RNA cloning, protein synthesis, the occurrence of genetic mutations and genetic exchange (conjugation)
15. Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"> 1-Develop teaching programs in coordination with higher departments 2- Developing teaching curricula similar to the work environment. 3-Sending students to departments and directorates for conducting summer application. 4- Assigning students to conduct research and reports. 5-Assigning students to go to the library and collect sources on the topic .Implementing practical lessons in laboratories, each according to their currency
16. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theory and Pract.		Introduction to microbiology	Giving lectures	Quiz+ activities
2	Theory and Pract.		The location of microorganisms among living organisms.	Giving lectures	Quiz+ activities
3	Theory and Pract.		Characteristics of microorganisms	Giving lectures	Quiz+ activities
4	Theory and Pract.		Structure of bacteria and functions of their parts.	Giving lectures	Quiz+ activities
5	Theory and Pract.		Nutrition of microorganisms. Bacterial nutrition	Giving lectures	Quiz+ activities
6	Theory and Pract.		Growth and reproduction of bacteria. Isolation of bacteria in pure culture,	Giving lectures	Quiz+ activities
7	Theory and Pract.		preservation of bacterial cultures, cell cycle, growth phases, estimation of bacterial growth,	Giving lectures	Quiz+ activities
8	Theory and Pract.		Mycoplasma, Phytoplasma, Rickettsia	Giving lectures	Quiz+ activities
9	Theory and Pract.		- Microbial genetics, nucleic acid synthesis, DNA replication, RNA replication, protein synthesis, heterogeneity in bacteria, genetic mutations, genetic exchange (conjugation),	Giving lectures	Quiz+ activities
10	Theory and Pract.		- Viruses... their discovery, physical properties, and chemical composition. Virus division	Giving lectures	Quiz+ activities

11	Theory and Pract.		- Fungi. External appearance, parasitism, fungal cell structure, changes in the vegetative structure of the fungus,	Giving lectures	Quiz+ activities
12	Theory and Pract.		- Algae: Protozoa: Soil microorganisms. Food—sources of food contamination, control of sources of contamination,	Giving lectures	Quiz+ activities
13	Theory and Pract.		- Microorganisms in milk and its products, microorganisms in vegetables and fruits. Damage	Giving lectures	Quiz+ activities
14	Theory and Pract.		- Control of microorganisms.	Giving lectures	Quiz+ activities
15	Theory and Pract.		Third month exam	Giving lectures	Quiz+ activities

17. 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

18. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Principals of Microbiology Dr. Khalaf Soofi Al-Delaimy
Main references (sources)	Relying on recent scientific research and publications issued by reputable international publishing houses and journals
Recommended books and references (scientific journals, reports...)	Scientific journals related to the field of microbiology
Electronic References, Websites	https://www.researchgate.net/ https://scholar.google.com/schhp?hl=

Course Description Form

Course Name:					
Organic Agriculture					
Course Code:					
AH1922					
Semester / Year:					
First Semester, 2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
Theoretical material is given 100%. Practical material is given 100%					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / Units 3.5					
Course administrator's name (mention all, if more than one name)					
Name: Dr. omar hashim muslah Email: ohmosleh@uoanbar.edu.iq					
Course Objectives					
Course Objectives:			<ul style="list-style-type: none"> • • • 		
1- Study the importance of science related to organic growth and agriculture					
2- Identify agricultural systems					
3- Knowing the suitable soil for each agricultural crop.					
4- Teaching the student to work in agricultural media					
5- Teaching students sterilization methods					
6- Identify the work of waste					
Teaching and Learning Strategies					
Strategy:					
1- Follow the lecture method and use modern presentation methods.					
2- Conduct laboratory experiments.					
3- Direct dialogue with students by asking them questions.					
4- Homework assignments (writing scientific reports).					
5- Learning through applied laboratory work					
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	1- Computer	Definition importance of organic agriculture	Electronic and application laboratories fields	lectu pract a
		2-Modern mobile device			
		3-Observations and field applications			
					Questions, discussions and examples

Second	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Identify areas wh organic agriculture widespread	Electronic lectu and pract application laboratories a fields	Questions, discussions and examples
Third	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Identify the types organic materials a their sources	Electronic lectu and pract application laboratories a fields	Questions, discussions and examples
Fourth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Identifying nitrogenous organic compounds	Electronic lectu and pract application laboratories a fields	Questions, discussions and examples
Fifth	2	First month exam			
Sixth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Nitrogenous orga compounds	Electronic lectu and pract application laboratories a fields	Questions, discussions and examples
Seventh	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Nitrogenous organic compounds	Electronic lectu and pract application laboratories a fields	Questions, discussions and examples
Eighth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Decomposition organic compou (cellulose, hemicellulose, star pectin, chitin)	Electronic lectu and pract application laboratories a fields	Questions, discussions and examples
Ninth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Decomposition organic compou (cellulose, hemicellulose, star pectin, chitin)	Electronic lectu and pract application laboratories a fields	Questions, discussions and examples
Tenth	2	Second month exam			
Eleven	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Formation of hur and humic a aggregates	Electronic lectu and pract application laboratories a fields	Questions, discussions and examples
Twelfth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Within organic mat colloids, soil colloid and soil organic mat content	Electronic lectu and pract application laboratories a fields	Questions, discussions and examples
Thirteen	2	1- Computer 2-Modern mobile	The role of orga matter in soil fertil	Electronic lectu and pract	Questions, discussions

		device 3-Observations and field applications	soil rejuvenation activity, and physical characteristics of the soil. functions of nitrogen plants, the forms nitrogen in the soil and its transformations.(	application laboratories and fields	and examples
Fourteenth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Organic soil material organic fertilization and organic agriculture importance, organic agriculture, integrated fertilization	Electronic lectures and application laboratories and fields	Questions, discussions and examples
Fifteen	2	Third month exam			
Course Evaluation					
1- Monthly exams. 2- Rapid exams . 3- Evaluation through classroom activity. 4- By preparing scientific reports and taking advantage of information networks. 5- Final exams.					
Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Principle in organic farming Prepared and composed Dr. Muwaffaq Mazban Musalat and Dr. Omar Hashim Musleh 2015		
Main references (sources)			Principles of organic farming Auther 2012 Dr mowafaq M. Muslat and Dr Omar H. Moslh		
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

Course Name:
Landscape Design Principles
Course Code:
AH1923
Semester / Year:
Autumn(First) / 2023-2024
Description Preparation Date:
25/1/2024
Available Attendance Forms:
Theoretical subject: It is given through the lecture program Practical subject: practical application Field visits Summer Training
Number of Credit Hours (Total) / Number of Units (Total)
30 hours / Theoretical 45 hours / practical Total 75 hours
Course administrator's name (mention all, if more than one name)
Assent. Prof. Dr. Zeyad Mohammed Abdulrazzaq zeyadmohammed@uoanbar.eud.iq
Course Objectives
<p>Knowledge of garden design concepts and related scientific, engineering and botanical terminology.</p> <p>Recognize the elements, principles, and rules used in garden design</p> <p>Recognize the importance of landscaping and garden design</p> <p>Learn how to draw 2D gardens and recognize the botanical and industrial symbols used in the design</p> <p>Recognize how to implement garden design</p> <p>The student knows how to start designing gardens according to the scientific stages.</p> <p>The student knows the basic requirements in the garden design process</p> <p>Recognize the garden models and the obstacles faced by each model and how to overcome them</p> <p>Recognize examples of different international, Arab and local garden designs</p> <p>Drawing proposed designs for gardens</p>
Teaching and Learning Strategies
<p>Brainstorming</p> <p>Thinking strategy according to the student's ability</p> <p>Critical Thinking is a term that symbolizes the highest level of thinking that aims to pose an issue and then analyze it logically to reach the required solution.</p> <p>Strategies of presentation, coordination, training, discussion, talking, listening, writing, reading, reading, thinking and reflecting</p>

Cognitive strategies, which are concerned with analyzing the topics to be studied, including naming, explaining, detailing, and organizing.

Metacognitive strategies, which are concerned with managing the learning process, such as selective attention to a specific topic or part of it, monitoring understanding, controlling comprehension, and conducting self-evaluation of what has been learned.

Social or affective strategies that are concerned with students' interaction with the teacher on the one hand and students' interaction with each other on the other hand, such as discussion and dialog with oneself.

These strategies can be achieved through:

Adopting the method of giving theoretical lectures using various modern means of explanation, through which the design systems used in the past and present are recognized in terms of the pros and cons of each design and how to overcome the negatives.

Following the method of practical application through which it aims to:

Introduce the student to how to start designing gardens according to the scientific stages.

The student knows the basic requirements in the garden design process

The student knows how to select and analyze design sites and develop appropriate design proposals for each proposed site, whether private or public gardens or green belts.

Recognize the design programs used to develop proposed designs.

Creating different designs for gardens after selecting different sites, and this is done on A3 paper and then applied on the ground or making miniature models of the proposed designs

Opening the door for discussion to exchange ideas with students, as well as applying the question and answer strategy.

Assigning students homework, writing reports and studies, and conducting field visits.

Conducting daily and monthly theoretical and practical tests.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5	Introduction and Definitions - Terms - Design, designer, garden, outdoor space and more	Landscape Design Principles	Explain the lecture and practice using drawing tools (ruler, triangles, pens, regular and grainy papers)	Discuss, ask questions, give examples, and quiz students
Second	5	The relationship of landscape design to other arts and sciences Design elements of	Landscape Design Principles	Explain the lecture and practice framing the design board space (A4 and	Discuss, ask questions, give examples,

		gardens and outdoor spaces (line - shape - form - texture - space)		A3) with information key, symbols, scale and north orientation	and quiz students
Third	5	Elements of garden design (scale, color, time, light and shadows)	Landscape Design Principles	Explain, present the lecture and conduct the practical application of the first exercise - recognizing and drawing all types of lines (straight, oblique, curved).	Discuss, ask questions, give examples, and quiz students
Fourth	5	Foundations and rules for designing gardens and outdoor spaces (simplicity - unity or cohesion - dominance of garden faces and others)	Landscape Design Principles	Explain and present the lecture and conduct the practical application of the second exercise - Recognizing the different plant and structural symbols and how to draw them	Discuss, ask questions, give examples, and quiz students
Fifth	5	Basic principles and rules in the design of gardens and outdoor spaces (color predominance - diversity or harmonious repetition - balance - proportion and scale)	Landscape Design Principles	Explain and present the lecture and conduct the practical application of the second exercise - Drawing different botanical and structural symbols on the drawing board and how to distribute them and apply the drawing scale when drawing them.	Discuss, ask questions, give examples, and quiz students
Sixth	5	Principles and rules	Landscape	Explain and	Discuss,

		of garden and outdoor space design (Emphasis - Sequence - Expansion)	Design Principles	present the lecture and conduct the practical application of the third exercise - overlapping lines and symbols to form 2D shapes	ask questions, give examples, and quiz students
Seventh	5	Foundations and rules of garden and outdoor space design (axis of design - symmetry and its types - time factor)	Landscape Design Principles	Explain the lecture presentation and practical application of the fourth exercise - Recognizing the relationships between different shapes and symbols (overlapping, touching, etc.) and how to draw them.	Discuss, ask questions, give examples, and quiz students
Eighth	5	Factors influencing the design of gardens, in light of which the design idea is developed.	Landscape Design Principles	Explanation and presentation of the lecture and practical application of the fifth exercise - Training on the use of different pens in drawing and explaining how to use each type on the drawing board.	Discuss, ask questions, give examples, and quiz students
Ninth	5	Steps to draw the design of gardens and outdoor spaces	Landscape Design Principles	Explanation and presentation of the lecture and practical application of the sixth exercise - Training on transferring and drawing different garden designs	Discuss, ask questions, give examples, and quiz students

				from reality to the drawing board and explaining the mistakes made by the designer and how to avoid them in the future.	
The tenth	5	Steps to implement the design of gardens and outdoor spaces	Landscape Design Principles	Explanation and presentation of the lecture and practical application of the seventh exercise - conducting a test for students to draw different gardens depending on the student's imagination in expressing different designs.	Discuss, ask questions, give examples, and quiz students
Eleventh	5	Chronology of garden design (Mesopotamian Gardens - Pharaonic Egyptian Gardens - Persian Gardens)	Landscape Design Principles	Explain and present the lecture and conduct the practical application of the eighth exercise - dividing students into groups to compete among them in designing one of the selected gardens at the college site.	Discuss, ask questions, give examples, and quiz students
Twelfth	5	The historical sequence of garden design (Greek Gardens - Roman Gardens - Chinese Gardens - Japanese Gardens)	Landscape Design Principles	Explaining and presenting the lecture and presenting the designs of the previous stages to learn how to discuss, analyze,	Discuss, ask questions, give examples, and quiz students

				give feedback, etc. and benefit from previous experiences	
Thirteenth	5	Historical sequence of garden design (Arab Islamic Andalusian Gardens - Mughal Gardens)	Landscape Design Principles	Explain and present the lecture and have the students prepare design ideas for each of them (to start the orientation and preparation)	Discuss, ask questions, give examples, and quiz students
Fourteenth	5	Historical sequence of garden design (Italian Gardens - French Gardens)	Landscape Design Principles	Explaining and presenting the lecture and presenting the design ideas for discussion in front of colleagues and presenting the design steps and the obstacles they faced	Discuss, ask questions, give examples, and quiz students
Fifteenth	5	Historical Sequence of Garden Design (French Gardens - English Gardens - Modern Gardens)	Landscape Design Principles	Explanation and presentation of the lecture and presentation and discussion of all designs	Discuss, ask questions, give examples, and quiz students
Course Evaluation					
Theoretical Tests					
Practical Tests					
Reports and studies					
Field visits					
Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Design and Landscaping, by Abu Dahab Mohammed and Tariq Abu Dahab. Garden Engineering and Design,		

<p style="text-align: center;">Main references (sources)</p>	<p>by Talal Mahmoud Chalabi. Garden Design and Landscaping, by Tarek Mahmoud Al-Qai'i. Foundations of Design, translated by Serop Kendrian</p>
<p style="text-align: center;">Recommended books and references (scientific journals, reports)</p>	<p>Book Garden Design, by Salvia Crowe Book RESIDENTIAL LANDSCAPE ARCHITECTURE, by Norman K.B. & James E.H.</p>
<p style="text-align: center;">Electronic References, Websites</p>	<p>Book Time-Saver Standards for Landscape Architecture by Charles H. & Nicholas D. Book Foundations of Landscape Architecture: Integrating Form and Space Using the Language of Site Design, by Norman B. Research and Articles Internet</p>

Course Description Form

Course Name:					
Plant genetics					
Course Code:					
AH1924					
Semester / Year:					
Autumn, 2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
attendance is according to the weekly lecture schedule					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / Units 3.5					
Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. Maath Mohey Mohammed Shareef Email: ag.maath.mohey@uoanbar.edu.iq					
Course Objectives					
Course Objectives:					
- Teach students the importance of genetics.			.....	
- Teaching students about the sciences related to genetics			.....	
. Study the nature of genetic material .			.....
Study of inheritance in plants .					
Learn about Mendel's laws .					
Learn about modern technologies in genetics .					
Teaching and Learning Strategies					
Strategy:					
Follow the lecture method and use modern presentation methods.					
Group dialogues .					
Direct dialogue with students by asking them questions					
Brainstorming strategy.					
Cooperative education strategy .					
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	1- Computer 2-Modern mobile device 3-Observations and field applications	A brief history of genetics The relationship of genetics to other applied sciences	Electronic lecture and application laboratories fields	Questions, discussions and examples

Second	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Plant cell and its components, cell division	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Third	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Introduction to Mendelian inheritance Mendel's first law	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Fourth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Mendel's second law and its application to horticultu plants	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Fifth	2	First month exam				
Sixth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Deviations from Mendelian laws, genetic interaction	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Seventh	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Genetic linkage and crossing, genetic map	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Eighth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Hybrid vigor and hybr heterosis	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Ninth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Hybrid vigor and hybr heterosis	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Tenth	2	Second month exam				
Eleven	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Applications of hybrid vigor in the agricultu field	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Twelfth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Genetic engineering and its testing metho	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Thirteen	2	1- Computer 2-Modern mobile	Applications of gene engineering in the	Electronic and	lectu pract	Questions, discussions

		device 3-Observations and field applications	agricultural field	application laboratories fields	and examples
Fourteenth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Quantitative genetics	Electronic and application laboratories fields	lectu pract Questions, discussions and examples
Fifteen	2	Third month exam			
Course Evaluation					
1- Monthly exams. 2- Rapid exams . 3- Evaluation through classroom activity. 4- By preparing scientific reports and taking advantage of information networks. 5- Final exams.					
Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Genetics 1990 Dr. Abdul Latif Al-Baldawi - Plant genetics and breeding. Ahmed Abdel Moneim 2009 . Plant Genetics, Dr. Abdul Basit Al-Musallam 2007		
Main references (sources)			Recent articles from the Internet and speciali scientific journals .		
Recommended books and references (scientific journals, reports...)			History of Genetics . 2021 Prof . Khaled Hamed Hassan		
Electronic References, Websites					

Course Description Form

Course Name:					
Horticultural plant insects					
Course Code:					
AH1925					
Semester / Year:					
autumn 2023 – 2024					
Description Preparation Date:					
25 \1 \ 2024					
Available Attendance Forms:					
Lectures					
Number of Credit Hours (Total) / Number of Units (Total)					
75 Hours 5 Units					
Course administrator's name (mention all, if more than one name)					
Name: L.Mohammed Majid Abed Email: muhammed.abed@uoanbar.edu.iq					
Course Objectives					
Course Objectives		Identifying the types of insects that afflict plants grown within orchards whether vegetables or fruits, along with understanding their harmful stages and damage, along with methods of control.			
Teaching and Learning Strategies					
Strategy		Adopting the method of delivering lectures and linking each topic with examples from the actual practice of agriculture, while providing students with simple practical exercises that are discussed and solved during the lecture, with the participation of all students in the class along with the professor to enhance interaction. Additionally, training students in laboratories by conducting necessary laboratory tests for diagnosis.			
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5 hours	Entomology and its relationship to the Environment.	Environmental Factors Influencing the Presence of Insects.	Lecture	Exam.
2	5 hours	Metamorphosis, and the types of larvae and pupae.	The metamorphosis, knowing the types of larvae and pupae.	Lecture	Exam.
3	5 hours	Desert locusts, the mole cricket and termite insects.	Identifying the damages insects, economic, Methods Control.	Lecture	Exam.
4	5 hours		Identifying of aphids types.	Lecture	Exam.
5					

6	5 hours	Aphids insects and types .		Lecture	Exam.
7	5 hours	Palm tree insects.	Identifying the damage insects, economic, Methods Control.	Lecture	Exam.
8	5 hours	Citrus insects and stem borers .	The important insects that affect citrus, their life cycles, the damages , they cause, and method control	Lecture	Exam.
9	5 hours	Vegetable insects 1, cabbage butterfly and red pumpkin beetle .	Identifying vegetable pests, economic, and the damages they cause.	Lecture	Exam.
10	5 hours	Cabbage webworm and Diamondback moth.	Identifying the scientific and common names , modes of damage, methods control.	Lecture	Exam.
11	5 hours	Vegetable insects 2, melon fly, Small Cucurbit Fly.	Identifying the damage insects, economic, Methods Control.	Lecture	Exam.
12	5 hours	black cutworm, whitefly and gastropod	Identifying the damage insects, economic, methods of control.	Lecture	Exam.
13	5 hours	Vegetable insects 3, bollworm and potato tuber moth .	Identifying the scientific and common names , modes of damage, methods control	Lecture	Exam.
14	5 hours	Eggplant stem borer, onion thrips.	The importance insect, life cycle, damages it causes, and methods of control	Lecture	Exam.
15	5 hours	Carob moth , Moth Cydia and Fig-Tree Moth.	Identifying vegetable pests, economic, and the damages they cause.	Lecture	Exam.
	5 hours	Fig fruit fly, olive leaf fly.	Identifying the damage insects, economic, Methods Control.		
	5 hours	Grape leafhopper , Hawk Moth and cicada.	The importance insect, life cycle, damages it causes, and methods of control		

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	
Learning and Teaching Resources	
Required textbooks (curriculum books, if any)	"Pests of Orchards" by Dr. Iyad Youssef Al-Haj Ismail and Banna Rakan Dabdoub. Published in 2008 by the Ministry of Higher Education and Scientific Research, Mosul University, 2010.
Main references (sources)	"Insects of Orchards" by Salem Jameel Jergis and Dr. Mohammed Karim Mohammed. Published in 1992 by the Ministry of Education and Scientific Research, Mosul University, College of Agriculture and Forestry.
Recommended books and references (scientific journals, reports...)	Pests of Fruit Crops A Colour Handbook, Second Edition By Alford , Copyriht . 2014. David V.
Electronic References, Websites	https://link.springer.com/book/10.1007/978-3-662-07913-3

Course Description Form

Course Name:					
Plant Nutrition					
Course Code:					
AH1926					
Semester / Year:					
Spring 2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
Theoretical material is given 100% in person. Practical material is given 100% in person.					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / units 3.5					
Course administrator's name (mention all, if more than one name)					
Name: Dr. omar hashim muslah Email: ohmosleh@uoanbar.edu.iq					
Course Objectives					
Course Objectives					
Studying the various nutritional factors affecting growth and yield formation			.....	
Learn about ways to divide nutrients			.....	
Knowing the appropriate soil for each agricultural crop			.....	
Knowing the harms and benefits of nutrients.					
Learn about ways to feed horticultural plants.					
Identify the nutritional needs of plants					
Teaching and Learning Strategies					
Strategy		1- Follow the lecture method and use modern presentation methods. 2- Conduct field experiments of the media. 3- Direct dialogue with students by asking them questions. 4- Homework assignments (writing scientific reports). 5- Learning through applied field work.			
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5	the computer A modern mobile device Observations and	applications Introduction to plant nutrition	electronic lecture and practical application in laboratories and	Questions, discussions and examples

		field		fields	
Second	5	the computer A modern mobile device Observations and field	applications Soil as a medium for plant growth and the readiness of nutrients	electronic lectu and practical application in laboratories and fields	Questions, discussions a examples
Third	5	the computer A modern mobile device Observations a field	lectures and practical application in laboratories and field	electronic lectu and practical application in laboratories and fields	Questions, discussions a examples
Fourth	5	the computer A modern mobile device Observations a field	applications Nutrient absorption (ionic absorption and its theories	electronic lectu and practical application in laboratories and fields	Questions, discussions a examples
Fifth	5	the computer A modern mobile device Observations a field	First Exam	electronic lectu and practical application in laboratories and fields	Questions, discussions a examples
Sixth	5	the computer A modern mobile device Observations a field	applications of water, plant nutrition and water physiological need	electronic lectu and practical application in laboratories and fields	Questions, discussions a examples
Seventh	5	the computer A modern mobile device Observations a field	Plant nutrition and th amount of yield (the relationship of the pla to the yield	electronic lectu and practical application in laboratories and fields	Questions, discussions a examples
Eighth	5	the computer A modern mobile device Observations a field	Plant nutrition, diseas and insect resistance	electronic lectu and practical application in laboratories and fields	Questions, discussions a examples
	5	the computer A modern mobile device Observations and field	Plant nutrition, diseas and insect resistance	electronic lectu and practical application in laboratories and fields	Questions, discussions a examples
Ninth	5	the computer A modern mobile dev Observations a field	Soil salinity and plant nutrition	electronic lectu and practical application in laboratories and fields	Questions, discussions a examples
The tenth	5	the computer A modern mobile device	Second exam	electronic lectu and practical application in	Questions, discussions a examples

		Observations a field		laboratories and fields	
eleventh	5	the computer A modern mobile device Observations a field	Pollution and plant nutrition	electronic lectu and practical application in laboratories and fields	Questions, discussions a examples
twelveth	5	the computer A modern mobile device Observations a field	Food crops and their role in plant nutrition	electronic lectu and practical application in laboratories and fields	Questions, discussions a examples
Thirteenth	5	the computer A modern mobile device Observations a field	Organic soil, organic fertilization and organic farming: importance, organic farming and integrative fertilization And the role of organ farming in sustainable agriculture	electronic lectu and practical application in laboratories and fields	Questions, discussions a examples

Course Evaluation

- 1- Monthly exams.
- 2- Rapid exams (Quazat).
- 3- Evaluation through classroom activity.
- 4- By preparing scientific reports and taking advantage of information networks.
- 5- Final exams.

Learning and Teaching Resources

Required textbooks (curricular books, if any)	Fertility and plant nutrition / Al-Qarwani, Mohieddin 1979 Plant nutrition / Al-Rais, Abdul Hadi Jawad 1988 Applied plant nutrition / Al-Sahhaf, Fadel Hussein 1989 Theoretical and practical plant nutrition (Muzaffar Ahmed Daoud Al-Mousili et al.) 2019
Main references (sources)	Fertility and plant nutrition / Al-Qarwani, Mohieddin 1979 Plant nutrition / Al-Rais, Abdul Hadi Jawad 1988 Applied plant nutrition / Al-Sahhaf, Fadel Hussein 1989 Theoretical and practical plant nutrition (Muzaffar Ahmed Daoud Al-Mousili et al.) 2019
Recommended books and references (scientific journals, reports...)	Mineral Nutrition and Plant Disease null by <u>Lawrence E. Datnoff</u> (Author, Editor), <u>Wade H. Elmer</u> (Editor), <u>Don M. Hube</u> 2007

Course Description Form

48.Course Name:					
Biochemistry					
49.Course Code:					
AH19210					
50.Semester / Year:					
Second Semester, 2023-2024					
51.Description Preparation Date:					
25/1/2024					
52.Available Attendance Forms:					
Mandatory					
53.Number of Credit Hours (Total) / Number of Units (Total):					
75 h.					
54.Course administrator's name (mention all, if more than one name)					
Name: Dr. Fadwa Waleed Abdulqahar, Dr. Bilal Ali Khashan and Mr. Omar Salah Ahmed					
Email: ag.fadwa.waleed@uoanbar.edu.iq					
55.Course Objectives					
Course Objectives		<p>1- The Biochemistry course aims to enrich students' knowledge of the major and minor biological components of the cells, their classification, composition, and their impact to different cells.</p> <p>2- It also aims to increase students' knowledge of the practical methods for these components' determination and estimation analyses.</p>			
56.Teaching and Learning Strategies					
Strategy		<p>6. Developing teaching programs in coordination with higher departments.</p> <p>7. Developing teaching curricula similar to the work environment.</p> <p>8. Sending students to departments and directorates for the purpose of conducting summer school.</p> <p>9. Assigning students to conduct research and reports related to the course.</p> <p>10.Assigning students to use of libraries and websites to collect sources on course topics.</p>			
57. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	5	Biochemistry	Fats and Oils	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
2	5	Biochemistry	Fats and Oils	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
3	5	Biochemistry	Proteins	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming

					and positive reinforcement, and conducting extracurricular activities.
4	5	Biochemistry	Amino Acids	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
5	5	Biochemistry	The 1 st monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
6	5	Biochemistry	Carbohydrates (mono saccharides)	Daily, monthly, and quarterly exams + grades	Delivering theoretical lectures and conducting class

				awarded for extracurricular activities, discussions, and class participation.	discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
7	5	Biochemistry	Carbohydrates (poly saccharides)	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
8	5	Biochemistry	Carbohydrates (sugar derivatives)	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular

					activities.
9	5	Biochemistry	Water	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
10	5	Biochemistry	The 2 nd monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
11	5	Biochemistry	Vitamins	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using

				participation.	brainstorming and positive reinforcement, and conducting extracurricular activities.
12	5	Biochemistry	Minerals	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
13	5	Biochemistry	Micro phyto chemicals (phenolics and other compounds)	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
14	5	Biochemistry	Extracurricular activity	Daily, monthly, and quarterly exams +	Delivering theoretical lectures and conducting

				grades awarded for extracurricular activities, discussions, and class participation.	class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
15	5	Biochemistry	The 3rd monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.

58.Course Evaluation

- 1- Conducting tests during the semester and asking questions to students to determine their understanding of the subject.
- 2- Conduct a research discussion at the end of the semester to find out students' choices in courses.
- 3- Conduct extracurricular activity by writing reports or educational brochures after completing the semester period to determine the extent to which students are able to diagnose problems and how to find solutions.

Course Description Form

1. Course Name:					
English Language/2					
2. Course Code:					
AH1927					
3. Semester / Year:					
SECOND / 2023-2024					
4. Description Preparation Date:					
25/1/2024					
5. Available Attendance Forms:					
in-person learning					
6. Number of Credit Hours (Total) /					
Number of Units (Total) 75 HOUER/2 UNIT					
7. Course administrator's name (mention all, if more than one name)					
Name: Lecturer :Muhammed Rasheed Muhammed Email:ag.muhammed.rasheed@uoanbar.edu.iq					
8. Course Objectives English Language/1					
a. Grades on students' participation in research and scientific reports b. Discussing research and reports, presenting them, and giving them a grade c. Conducting tests during the application period and asking questions to students to determine the extent of their understanding of the subject d. Conduct a discussion of reports at the end of the semester to find out students' choices in courses e. Writing reports after completing the application period to determine the extent which students were able to diagnose problems and how to find solutions.					
9. Teaching and Learning Strategies					
a. Developing teaching programs in coordination with higher departments. b. Develop teaching curricula similar to the work environment. c. Sending students to departments and directorates for the purpose of conducting summer application. d. Assigning students to conduct research and reports. e. Assigning students to go to the library and collect resources on the topic. f. Implementing practical lessons in laboratories, each according to specialty					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	Theoret 1 hour	English Language/2	Auxiliary verbs (do, be, have) Naming the tenses Questions and Negatives Short answers	Theoretical 1 hour	Daily and quarterly exam activity
2	Theoret 1 hour	English Language/2	Present tenses (simp continuous, passive	Theoretical 1 hour	Daily and quarterly exam activity
3	Theoret 1 hour	English Language/2	Doing the right thing	Theoretical 1 hour	Daily and quarterly exam activity
4	Theoret 1 hour	English Language/2	Modal verbs - obligation and permission	Theoretical 1 hour	Daily and quarterly exam activity
5	Theoret 1 hour	English Language/2	نظرية Future forms Going to , present continuous	Theoretical 1 hour	Daily and quarterly exam activity
6	Theoret 1 hour	English Language/2	Questions with like Verb patterns	Theoretical 1 hour	Daily and quarterly exam activity
7	Exam2				
8	Theoret 1 hour	English Language/2	Present perfect Present perfect passive	Theoretical 1 hour	Daily and quarterly exam activity
9	Theoret 1 hour	English Language/2	Conditionals Time clauses	Theoretical 1 hour	Daily and quarterly exam activity
10	Theoret 1 hour	English Language/2	Modal verbs (2) probability	Theoretical 1 hour	Daily and quarterly exam activity
11	Theoret 1 hour	English Language/2	Present perfect Continuous Questions & answers Time expressions	Theoretical 1 hour	Daily and quarterly exam activity
12	Theoret 1 hour	English Language/2	Indirect questions Question tags	Theoretical 1 hour	Daily and quarterly exam activity
13	Theoret 1 hour	English Language/2	Reported speech (reported statement reported	Theoretical 1 hour	Daily and quarterly exam activity
14	Theoret 1 hour	English Language/2	questions, and reported requests commands)	Theoretical 1 hour	Daily and quarterly exam activity
15	Exam2				

11. Course Evaluation

. Daily (10%) and monthly tests (40%) through questions on the subject of the subject. final exam(50%).

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	New Headway Intermediate Students book
Main references (sources)	New Headway Intermediate Students book
Recommended books and references (scientific journals, reports...)	Headway Plus\ Intermediate \ Special Edit with online Practice
Electronic References, Websites	You Tub Chanel

Course Description Form

1. Course Name:					
Computer 3					
2. Course Code:					
AH1928					
3. Semester / Year:					
First Semester/2023–2024					
4. Description Preparation Date:					
25/1/2024					
5. Available Attendance Forms:					
in-person learning					
6. Number of Credit Hours (Total) / Number of Units (Total)					
30/1 (practical only)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Bilal Yaseen Taher Email: ag.bilal.yaseen@Uoanbar.edu.iq					
8. Course Objectives					
Course Objectives			<p>A-Ability to understand the principle of Excel program.</p> <p>B-Increasing the skills of students for using it to solve the problems.</p> <p>C-Ability the undergraduate students to use these skills in different fields.</p> <p>D-Ability the students to graph equations, inequalities and all function</p>		
9. Teaching and Learning Strategies					
Strategy		<p>A1 Analysis the data and understand how can you be ability to apply it by using the equations of excel program.</p> <p>A2. Testing these equations in the practical experimental.</p> <p>A3. Using equations to find great data for different variables with simple way and which spend less time and effort.</p> <p>A4. Ability to use suitable coordinates and scales in the problems, and graph it.</p> <p>A5. Ability of student to evaluate the problems, and writing the scientific reports.</p> <p>A6. The student can acquire the practical and scientific experience his specialized field it.</p>			
10. Course Structure					
Week	Hours	Required Learning	Unit or subject name	Learning method	Evaluation method

		Outcomes			
First	2	definition and important of Microsoft excel 2010	introduction of Microsoft excel 2010	by computer	questions , discussions, and examples
Second	2	methods of operating Microsoft excel 2010 .	operating Microsoft excel 2010	by computer	questions , discussions, and examples
Third	2	Definition the groups in file tab. (save, save as,....)	file tab	by computer	questions , discussions, and examples
Fourth	2	Definition the groups in home tab (clipboard, font, number,....)	home tab	by computer	questions , discussions, and examples
Fifth	2	Exam of first month			
Sixth	2	Include the groups (themes, page setup, select to fit,..)	page layout tab	by computer	questions , discussions, and examples
Seventh	2	Definition the groups in insert tab (tables, charts, spark lines,...)	insert tab	by computer	questions , discussions, and examples
Eighth	2	Definition the groups in insert tab (filter, links, text, symbols, ,...)	insert tab	by computer	questions , discussions, and examples
Ninth	2	Include the groups (function library, defined names, calculations,...)	formula tab	by computer	questions , discussions, and examples
Tenth	2	Exam of second month			
Eleventh	2	application of equations in formula bar	formula tab	by computer	application of equations in formula bar
Twelfth	2	Definition the groups in review tab (proofing, language, comments,....)	Review tab	by computer	Definition the groups in review tab (proofing, language, comments,....)
Thirteenth	2	Definition the groups in view tab (workbook views, show, zoom,	View tab	by computer	Definition the groups in view tab (workbook views, show,

		window)			zoom, window)
Fourteenth	2	applications for all tabs	review for all tabs	applications for all tabs	applications for all tabs
Exam of the third month					
11. Course Evaluation					
Practical Quiz 10%, Practical exam 40%, final exam (Practical only) 50%. Final degree from 100%.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			"Essentials of computers and library applications", Pro.Dr. Zaid Mohamed Abood, Pro.Dr. Gasan Hameed, vol.3, 2010		
Main references (sources)			Practical applications by excel program		
Recommended books and references (scientific journals, reports...)			Essentials of computers and library applications		
Electronic References, Websites			Microsoft Internet websites		

Course Description Form

Course Name:					
Plant Anatomy					
Course Code:					
AH19211					
Semester / Year:					
2nd / spring, 2023-2024					
Description Preparation Date:					
25 / 1/ 2024					
Available Attendance Forms:					
attendance is according to the lecture schedule					
Number of Credit Hours (Total) / Number of Units (Total)					
70 hours / Units 3.5					
Course administrator's name (mention all, if more than one name)					
Name: prof. Dr. Saad A. Mahmood					
Email: saad.abd@uoanbar.edu.iq					
Course Objectives					
The ability to understand the basics of plant anatomy		.....		
Increasing the skills of primary school students in using modern techniques available in plant anatomy		.....		
3- The ability of students to use these skills implementing and preparing anatomical sections of plant tissues		.....		
Teaching and Learning Strategies					
Follow the lecture method and modern presentation methods.					
Direct dialogue with students by asking them questions.					
Practical lessons in the plant anatomy laboratory and how to use the available techniques of dissection tools and types of microscopes available.					
Learning through implementing anatomical sections					
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	5	Understand	Introduction	With	Questions,

		and comprehend the basics of plant anatomy and related sciences	to plant anatomy	modern display devices	discussions and examples
Second	5	The ability to understand the components of the plant cell and the components of the cell wall	Plant cell and cell wall	With modern display devices	Questions, discussions and examples
Third	5	Understanding and explaining the living organs of the plant cell	Living components of a plant cell	With modern display devices, tools and laboratory equipment	Questions, discussions and examples
Fourth	5	Understand and explain the non-living components of the plant cell	Non-living components of the plant cell	With modern display devices	Questions, discussions and examples
Fifth	2		First month exam		
Sixth	5	Understanding and studying the components and properties of meristematic tissues	Meristematic tissue	With modern display devices, tools and laboratory equipment	Questions, discussions and examples
Seventh	5	Understanding and studying the components and properties of permanent tissues	Permanent tissues	White board	Questions, discussions and examples
Eighth	5	Understanding and studying the connective tissue system: the skin	Cellular diversity in the connective tissue system: the epidermis	With modern display devices, tools and laboratory equipment	Questions, discussions and examples

Ninth	5	Understanding and studying the connective tissue system: stomatal complexes	Cellular diversity in the connective tissue system: stomatal complexes	With modern display devices, tools and laboratory equipment	Questions, discussions and examples
Tenth	2		Second month exam		
Eleven	5	Understanding and studying the basic system: parenchymal tissue	Basic system: parenchymal tissue	With modern display devices, tools and laboratory equipment	Questions, discussions and examples
Twelfth	5	Understanding and studying the basic system: the collagenous tissue	Basic system: collenchyma tissue	With modern display devices, tools and laboratory equipment	Questions, discussions and examples
Thirteenth	5	Understanding and studying the basic system: the collagenous tissue	Basic system: sclerenchyma (fibers)	With modern display devices, tools and laboratory equipment	Questions, discussions and examples
Fourteenth	5	Understanding and studying the basic system: sclerenchyma	Main system: sclerenchyma (scleridoids)	With modern display devices, tools and laboratory equipment	Questions, discussions and examples
Fifteen	2	Third month exam			
Course Evaluation					
Monthly exams. Rapid exams (Quazat). Evaluation through classroom activity Through writing reports and laboratory activities 5- Final exams.					
Learning and Teaching Resources					
Required textbooks (curricular books, if any)			1-Basics of plant anatomy Dr. Badri Awaid Al-Ani		

	Dr. Qaiser Naguib Saleh 2- Plant anatomy lectures available on websites
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name:
Plant Physiology
Course Code:
AH19212
Semester / Year:
Spring (Second) / 2023-2024
Description Preparation Date:
25/1/2024
Available Attendance Forms:
Theoretical subject: It is given through the lecture program Practical subject: practical application Field visits Summer Training
Number of Credit Hours (Total) / Number of Units (Total)
30 hours / Theoretical 45 hours / practical Total 75 hours
Course administrator's name (mention all, if more than one name)
<p style="text-align: center;">Prof. Dr. Rasmi Mohammed Hamad ag.rassme.mohammed@uoanbar.edu.iq</p> <p style="text-align: center;">Dr. Idrees Hussein Mola Salih Mohammed idresshussein@uoanbar.edu.iq</p> <p style="text-align: center;">Dr. Noor Taha Abd Noor.taha@uoanbar.edu.iq</p>
Course Objectives
Learn about plant physiology The study of the plant cell, its components and their respective functions Recognize water relations (diffusion, osmosis, osmosis, permeability) Recognize the mechanism of absorption and transport of water and salts through the plant Study transpiration, its types and benefits to the plant Study respiration and its types and benefits to the plant Recognize photosynthesis and the mechanism of its occurrence in the plant and its importance to the plant
Teaching and Learning Strategies
Brainstorming Thinking strategy according to the student's ability Critical Thinking is a term that symbolizes the highest level of thinking that aims to pose an issue and then analyze it logically to reach the required solution. Strategies of presentation, coordination, training, discussion, talking, listening, writing, reading, reading, thinking and reflecting

Cognitive strategies, which are concerned with analyzing the topics to be studied, including naming, explaining, detailing, and organizing.

Metacognitive strategies, which are concerned with managing the learning process, such as selective attention to a specific topic or part of it, monitoring understanding, controlling comprehension, and conducting self-evaluation of what has been learned.

Social or affective strategies that are concerned with students' interaction with the teacher on the one hand and students' interaction with each other on the other hand, such as discussion and dialog with oneself.

These strategies can be achieved through:

Adopting the method of giving theoretical lectures using various modern means of explanation, through which the design systems used in the past and present are recognized in terms of the pros and cons of each design and how to overcome the negatives.

Following the method of practical application.

Opening the door for discussion to exchange ideas with students, as well as applying the question and answer strategy.

Assigning students homework, writing reports and studies, and conducting field visits.

Conducting daily and monthly theoretical and practical tests.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5	Plant-Water Relationship: Physical and chemical properties, functions and functions of water in plants	Plant Physiology	Explain, present the lecture and conduct the scientific application to Studying the plant cell using a microscope	Discuss, ask questions, give examples, and quiz students
Second	5	Diffusion and osmosis: plant cells and diffusion, types of membranes according to their composition and permeability, factors affecting the plasma membrane	Plant Physiology	Explain, present the lecture and conduct the scientific application to Experiments on measuring diffusion	Discuss, ask questions, give examples, and quiz students
Third	5	Diffusion and osmosis: plant cells and diffusion, types of membranes according to their composition and permeability, factors affecting the plasma membrane	Plant Physiology	Explain, present the lecture and conduct the scientific application to Experiments on measuring plasmodesmata	Discuss, ask questions, give examples, and quiz students
Fourth	5	Chemical potential of water, aqueous	Plant Physiology	Explain, present the lecture and conduct	Discuss, ask

		potential, osmotic potential	y	the scientific application to Experiments on measuring imbibition	questions, give examples, and quiz students
Fifth	5	Factors affecting osmotic potential, types of solutions for the cell, osmotic pressure, wall pressure	Plant Physiology	Explain, present the lecture and conduct the scientific application to Experiments on measuring transpiration	Discuss, ask questions, give examples, and quiz students
Sixth	5	Examples and applications of the plant cell, water potential and its components	Plant Physiology	Explain, present the lecture and conduct the scientific application to Experiments on measuring the movement and transport of water	Discuss, ask questions, give examples, and quiz students
Seventh	5	Plasmodesmata, impregnation	Plant Physiology	Explain, present the lecture and conduct the scientific application to Experiments on measuring the movement and transport of mineral elements	Discuss, ask questions, give examples, and quiz students
Eighth	5	Mechanism of water uptake, water uptake from soil, movement and transport of water within the plant	Plant Physiology	Explain, present the lecture and conduct the scientific application to Experiments on measuring the transport of processed foodstuffs (carbohydrates)	Discuss, ask questions, give examples, and quiz students
Ninth	5	Water transport through plasma channels, free transport of water, bleeding and guttation	Plant Physiology	Explain, present the lecture and conduct the scientific application to Experiments on measuring the transport of processed food (carbohydrates)	Discuss, ask questions, give examples, and quiz students
The tenth	5	Transpiration: Its importance, types of transpiration,	Plant Physiology	Explain, present the lecture and conduct the scientific	Discuss, ask questions,

		hypotheses of the mechanics of water transport from bottom to top		application to Experiments on measuring respiration	give examples, and quiz students
Eleventh	5	Mechanism of stomatal closure and opening	Plant Physiology	Explain, present the lecture and conduct the scientific application to Respiration experiments	Discuss, ask questions, give examples, and quiz students
Twelfth	5	Respiration	Plant Physiology	Explain, present the lecture and conduct the scientific application to Photosynthesis experiments	Discuss, ask questions, give examples, and quiz students
Thirteenth	5	Respiration	Plant Physiology	Explain, present the lecture and conduct the scientific application to Experiments on photosynthesis	Discuss, ask questions, give examples, and quiz students
Fourteenth	5	Photosynthesis	Plant Physiology	Explain, present the lecture and conduct the scientific application to Dormancy and germination experiments	Discuss, ask questions, give examples, and quiz students
Fifteenth	5	Photosynthesis	Plant Physiology	Explain, present the lecture and conduct the scientific application to Experiments in Dormancy and Germination	Discuss, ask questions, give examples, and quiz students

Course Evaluation

Theoretical Tests

Practical Tests

Reports and studies

Field visits

Learning and Teaching Resources

<p align="center">Required textbooks (curricular books, if any)</p>	<p>Books Plant Physiology, by Lincoln & Zeiger</p>
<p align="center">Main references (sources)</p>	<p>Book Fundamentals of Plant Physiology, by Bassam Taha</p>
<p align="center">Recommended books and references (scientific journals, reports)</p>	<p>Book Plant Physiology, by Emad El Din Wasfi</p>
<p align="center">Electronic References, Websites</p>	<p>Book Plant Physiology, by Heshmat El-Desouki and Abeer El-Hakim</p> <p>Book Fundamentals of Practical Plant Physiology, by Heshmat El-Desouki and Abeer El-Hakim</p> <p>Research & Articles</p> <p>Internet</p>

Course Description Form

Course Name:					
Nurseries and Propagation					
Course Code:					
AH19213					
Semester / Year:					
2023- 2024					
Description Preparation Date:					
2024/1/25					
Available Attendance Forms:					
It is given in the presence of the students					
Number of Credit Hours (Total) / Number of Units (Total)					
75 hours / 3.5 units					
Course administrator's name (mention all, if more than one name)					
Name: Assist. Prof. Dr. Atheer Mohammed Ismail					
Email: ag.atheer.mohammed@uoanabr.edu.iq					
Course Objectives					
Course Objectives			<p>1- Introducing the student to the basics of global plants propagation and the facility for propagation of plants in greenhouses, glass houses, cold and heated beds, and others.</p> <p>2 - Introducing the student to the basics of global plant propagation and plant propagation facility.</p> <p>3 - A brief history of the initiation and evolution of plant propagation.</p> <p>4 - Introduce the student to the methods of vegetative propagation of plants and the cellular foundation of seeds propagation.</p>		
Teaching and Learning Strategies					
Strategy		<p>1- Follow the lecture style with the use of modern means of presentation.</p> <p>2- Conducting laboratory experiments.</p> <p>3- Direct dialogue with students by asking them questions.</p> <p>4- Homework (writing scientific reports).</p> <p>5- Learning through applied field practices.</p>			
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5 hr.	<p>1- Lectures</p> <p>2- the computer</p> <p>3- A modern mobile device</p> <p>4- Observations and field application</p>	Theoretical: The evolution of plant propagation in human society, Sexual propagation by seeds, Seed development,	Theoretical lectures and practical application laboratories an	Questions, discussions and examples

			<p>Matured seeds, Apomixis phenomena, Types of apomixes, Polyembryony</p> <p>Practical: Nursery, Types of nurseries, Requirements that must be fulfilled to establish a nursery</p>	fields.	
Second	5 hr.	<p>1- Lectures</p> <p>2- the computer</p> <p>3- A modern mobile device</p> <p>4- Observations and field application</p>	<p>Theoretical: Seed dormancy, The advantages of seed dormancy, Seed dormancy causes (Seed coats hardness, Inhibitors in seed coverings or in embryo. The embryo is not fully developed, Requirements for therapy at specific temperatures)</p> <p>Stages of dormancy, Types of dormancy</p> <p>Practical: Nursery facilities (Span houses, Lathhouses, Greenhouses, Cold beds, Hot beds), Agricultural media used in plant propagation (Sand, Peat moss, Sphagnum moss, Sawdust and bark, Vermiculite, Perlite)</p>	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Third	5 hr.	<p>1- Lectures</p> <p>2- the computer</p> <p>3- A modern mobile device</p> <p>4- Observations and field application</p>	<p>Theoretical: Seed germination, Stages of seed germination, Environmental factors influencing the germination of seeds</p> <p>Practical: Treatments that stimulate seed germination (Scarification, Stratification, Soak the seeds in water, Treating seeds with plant growth</p>	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples

			regulators)		
Fourth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Asexual propagation (Vegetative propagation), Cellular foundations of vegetative propagation Reasons for using vegetative propagation, The clone Genetic variations in vegetatively propagated plants (Mutations, Chimera, Bud sports) Practical: Seeds extraction, Methods of cultivation seeds	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Fifth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Exam	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Sixth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Vegetative propagation by cutting Conditions that must be met for propagating by cuttings, Advantages of propagation by cutting Kinds of cuttings, The cellular and anatomical foundations of adventitious roots formation Practical: Transactions that encourage the formation of adventitious roots on cuttings	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Seventh	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Factors affecting the formation of adventitious roots, Internal plant-related factors, Therapies that will enhance the mother plant's physiological status, (Etiolation, Girdling, Wounding), Environment-related external factors	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples

			Practical: Prepare the cuttings, Practical applications for propagation by cutting Preparing plant growth regulators solutions for treating cuttings		
Eighth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: The theoretical foundation of budding and grafting Propagation purposes budding and grafting. Practical: Seedlings individualization, Seedlings acclimatization Transporting and cultivation seedlings in permanent location	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Ninth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Bud union formation, Steps union the shield budding process, Compatibility and incompatibility, The mutual effects between rootstock and scion Practical: Methods of propagation by budding	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Tenth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Preparing bud sticks, The characteristics of the rootstocks utilized in the budding process, the height of budding region Budding procedure details Practical: Methods of propagation by budding	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Eleventh	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Exam	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Twelfth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Grafting, The cellular and anatomical foundation of grafting, Advantages and disadvantages of propagation by grafting	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples

			Selection and storage of graft budsticks Practical: Methods of propagation by grafting	fields.	
Thirteen	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Layering, Advantages of layering Factors affecting the success of propagation by layering, Simple layering Practical: Methods of propagation by layering	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Fourteen	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Vegetative propagation by specialized parts, Bulbs, Corms, Tubers, Rhizomes, Offsets Practical: Plant modifications suitable for natural propagation (Runners, Stolons, Offsets, Suckers, Crown division)	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Fifteenth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: The foundations of plant propagation through plant tissue culture, Plant tissue culture propagation stages, Advantages and disadvantages of propagation by plant tissue culture, Acclimatization methods of plants resulting from plant tissue culture Practical: Visiting the laboratory of plant tissue culture, Foundations for establishing plant tissue culture laboratories, Learn how to prepare propagation and development media used with plant tissue culture technology	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples

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.

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Salman, M. A. 1988. Propagation of Horticult Plants. Ministry of Higher Education and Scient Research- University of Baghdad- Iraq.
Main references (sources)	Hartmann, H. T., D. E. Kester, F. T. Davies and R. Geneva. 2010. Plant propagation. Principles and practices. 8 th . Ed. Prentice Hall, Englewood Cliffs. New Jersey.
Recommended books and references (scientific journals, reports...)	Muhammad, S. 1998. Plant propagation its Art and Science. Maktaba Imdadai Mph: Jangi Qissa Khawani Peshawar.
Electronic References, Websites	

Course Description Form

Course Name:						
Agricultural of agriculture Extension						
Course Code:						
AH19214						
Semester / Year:						
2023-2024						
Description Preparation Date:						
2024/1/25						
Available Attendance Forms:						
My attendance is according to the lecture schedule						
Number of Credit Hours (Total) / Number of Units (Total)						
30 hour						
Course administrator's name (mention all, if more than one name)						
Name: Dr. Mukhalad Hadi Ismali Email: mhalani@uoanbar.edu.iq						
Course Objectives						
Course Objectives 1- Extension to know agricultural extension, through the definition and philosophy agricultural extension. 2- Clarifying the objectives of agricultural extension, the role of agricultural extension educating farmers and peasants. 3- The role of agricultural extension in rural development, and an explanation of position of agricultural extension among agricultural sciences. 4- Showing agricultural extension systems and linking them to the principles organization and the functions of the administrative organization of agricultural extension 5- Agricultural extension organization in Iraq and communication, elements communication, adoption 6- Roads and agricultural extension aids.						..... ..... .....
Teaching and Learning Strategies						
Strategy 1- Follow the lecture method and use modern presentation methods 2- Direct dialogue with students by asking them questions 3- Homework (writing scientific reports)						
Course Structure						
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method	
1- Course Structure						
Week	Hours	ILOs	Unit/Module orTopic Title	Teaching Method	Assessment Method	
First	2	A Historical overview of agricultural extension	Grapes and their economic importance	Electronic lectures and practical application	Questions, discussions and examples	

			and nutritional value		
Second	2	Definition of agricultural extension	Grape classification	Electronic lectures and practical application	Questions, discussions and examples
Third	2	The relationship between scientific research and extension agencies	Preparing a nursery for the propagation of grapes in various ways	Electronic lectures and practical application	Questions, discussions and examples
Fourth	2	Agricultural extension philosophy	Suitable environment for farming	Electronic lectures and practical application	Questions, discussions and examples
Fifth	2	Behavioral changes targeted by counseling First month exam			
Sixth	2	Principles of agricultural extension	The phenotypic structure of the grape tree	Electronic lectures and practical application	Questions, discussions and examples
Seventh	2	Objectives of agricultural extension Agricultural extension agency	Annual cycle of grape vine growth	Electronic lectures and practical application	Questions, discussions and examples
Eighth	2	Agricultural extension agency	Grape propagation	Electronic lectures and practical application	Questions, discussions and examples
Ninth	2	Extension training	Breeding and pruning grapes	Electronic lectures and practical application	Questions, discussions and examples
Tenth	2	Second month exam			
Eleven	2	Extension leadership	Study of the small fruits (strawberry, raspberry, blackberry, blueberry,	Electronic lectures and practical application	Questions, discussions and examples

			currant, cosberry, cranberry) in terms of their importance and the appropriate environment for them, their propagation, cultivation and service processes					
Twelfth	2	Extension Adoption	Methods of cultivation and production of strawberry, raspberry, blackberry, currant, blueberry, cranberry and service and harvest operations	Electronic lectures and practical application	Questions, discussions and examples			
Thirteen	2	Extension planning	Growing grapes on the slopes in northern Iraq	Electronic lectures and practical application i	Questions, discussions and examples			
Fourteenth	2	Extension methods	Some agricultural service operations for grapes	Electronic lectures and practical application	Questions, discussions and examples			
Fifteen	2	Evaluation of extension programs						
Course Evaluation								
1- Monthly tests 2- Rapid tests (COUZ) 3- Evaluation of classroom activity 4- Preparing scientific reports 5- Final exams								
Learning and Teaching Resources								
Required textbooks (curricular books, if any)				Al-Samarrai, Hatem 0972Agricultural extension and its r				

	in rural development, Press Al-Zaman, Baghdad.
Main references (sources)	Addison H. Mander, translated by Ab Abdel Mohsen Al Khafaji. 09 Agricultural extension, C, 0C, 6 University of Basra.
Recommended books and references (scientific journals, reports...)	Recent articles from the Internet a from specialized scientific journals a the Science Magazine Al-Zariyah - Iraqi virtual library
Electronic References, Websites	

Course Description Form

Course Name:	
Weeds	
Course Code:	
AH19215	
Semester / Year:	
2023-2024	
Description Preparation Date:	
2024-1-25	
Available Attendance Forms:	
in person	
Number of Credit Hours (Total) / Number of Units (Total)	
30 Theoretical Hours + 45 Practical Hours 3 units	
Course administrator's name (mention all, if more than one name)	
Name: Dr. yas amen mohammed Email: ag.yass.ameen@uoanbar.edu.iq	
Course Objectives	
<p>A - Expanding the students' theoretical and practical perceptions regarding weed control.</p> <p>B – Study the description of weed and its characteristics related to the weed biology.</p> <p>C - Identify the damages of weed to agricultural production and the ecosystem.</p> <p>d - Getting acquainted with the methods of combating weed and the modern technologies used in this field.</p>	
Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"> -Increasing students' awareness of modern trends in managing and protecting pastures. -Using Power Point presentation methods to convey information well and clearly to the student And Urging students to take advantage of Google search engines while asking them to submit scientific reports on the topics given to them in the academic subject. - Semester and final exams are considered a reflection of the student's commitment and cognitive and skill achievement.
Course Structure	

Course Description Form

1. Course Name:					
Computer / 4					
2. Course Code:					
AH19216					
3. Semester / Year:					
2023-2024					
4. Description Preparation Date:					
25/1/2024					
5. Available Attendance Forms:					
in-person learning					
6. Number of Credit Hours (Total) / Number of Units (Total)					
30/1 (practical only)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Bilal Yaseen Taher Email: ag.bilal.yaseen@Uoanbar.edu.iq					
8. Course Objectives					
Course Objectives		Ability to understand the principle of PowerPoint program, Increasing the skills of students for using it to solve the problems, Ability the undergraduate students to use these skills in different fields, Ability the students to show their presentations of researches by data show			
9. Teaching and Learning Strategies					
Strategy		Using these computer essentials and skills in different applications. Using the computer programs to do the presentations for your seminars and researches by data show. Ability of student to evaluate the problems, and writing then scientific reports. The student can acquire the practical and scientific experience in his specialized field it.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	definition and important of Microsoft excel 2010	introduction of Microsoft PowerPoint 2010	by computer	questions , discussions, and examples
Second	2	operating Microsoft PowerPoint 2010.	operating Microsoft PowerPoint 2010	by computer	questions , discussions, and examples
Third	2	Definition	file, home, and Insert	by computer	questions ,

		the groups in file tab. (save, save as,....)	tab		discussions, and examples
Fourth	2	Definition the groups in home tab (clipboard, font, number,.....)	Design and Transitions Tab	by computer	questions , discussions, and examples
Fifth	2	Exam of first month			
Sixth	2	Include the groups (themes, page setup, select to fit,..)	page layout tab	by computer	questions , discussions, and examples
Seventh	2	Definition the groups in Animation tab (type of animations,...)	Animation tab	by computer	questions , discussions, and examples
Eighth	2	Definition the methods of slides view in view tab	View tab	by computer	questions , discussions, and examples
Ninth	2	slides show methods calculations,...)	Slides Show tab	by computer	questions , discussions, and examples
Tenth	2	Exam of second month			
Eleventh	2	proofing and translations	Review tab	by computer	application of equations in formula bar
Twelfth	2	methods of slides printing	methods of slides Print	by computer	Definition the groups in review tab (proofing, language, comments,....)
Thirteenth	2	Definition the groups in slides show tab	methods of slides show	by computer	Definition the groups in view tab (workbook views, show, zoom, window)
Fourteenth	2	applications for all tabs	review for all tabs	applications for all tabs	applications for all tabs
Exam of the third month					
11. Course Evaluation					
Practical Quiz 10%, Practical exam 40%, final exam (Practical only) 50%. Final degree from 100%.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			"Essentials of computers and library applications", Pro.Dr. Zaid Mohamed Abood, Pro.Dr. Gasan Hameed, vol.3,		

	2010
Main references (sources)	Practical applications by PowerPoint program.
Recommended books and references (scientific journals, reports...)	Essentials of computers and library applications
Electronic References, Websites	Microsoft Internet websites

Course Description Form

13. Course Name:	
Arabic Language	
14. Course Code:	
AH19217	
15. Semester / Year:	
2023-2024	
16. Description Preparation Date:	
25/1/2024	
17. Available Attendance Forms:	
Presence	
18. Number of Credit Hours (Total) / Number of Units (Total)	
30 hours 2 units per week	
19. Course administrator's name (mention all, if more than one name)	
Name: mohammed kareem shaker Email: ag.mohammed.kareem@uoanbar.edu.iq	
20. Course Objectives	
1- Preparing students, including the Arabic language 2- Instilling the values of the Arabic language the hearts of students	3-Assistance in writing scientific research in objective Arabic 4- Familiarity with Arabic language vocabulary and correct spelling 5- Knowing the common mistakes
21. Teaching and Learning Strategies	
Strategy	1- Enabling students to obtain the intellectual framework for the Arabic language subject 2- Preparing students linguistically and educationally 3- A solid knowledge of the Arabic language vocabulary that enables the student formulate Arabic vocabulary 4- Avoid spelling mistakes 5- Correct pronunciation of some vocabulary 6- Expanding cognitive awareness
22. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding an	Sections of speech	My presence	the exam
2	2	learning	punctuation marks	My presence	the exam
3	2	skills developmen	Common linguistic	My presence	the exam
4	2	Correct spelling	errors	My presence	the exam
5	2	Know the errors	The difference	My presence	the exam
6	2	Knowledge and	between dha and	My presence	the exam
7	2	awareness	dha	My presence	the exam
8	2	Learn to parse	Solar and lunar lar	My presence	the exam
9	2	Learn to parse	The simple and	My presence	the exam
10	2	Knowledge and	marbuta tā'	My presence	the exam
11	2	perception	Number and numb	My presence	the exam
12	2	Learn Arabic	Suspicious actions	My presence	the exam
13	2	Proper	Imperfect verbs	My presence	the exam
14	2	pronunciation	The subject and th	My presence	the exam
15	2	Learn the differences Brief and learn Discrimination Understanding an perception The right style	predicate Sound feminine plural Sound masculine plural The parsing Discrimination Exception	My presence	

23. Course Evaluation

1- Through daily and monthly exams, homework, oral exams, attendance, and class activities.

24. Learning and Teaching Resources

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

Course Description Form(The Third Stage)

Course Name:					
Deciduous fruits / 1					
Course Code:					
AH1930					
Semester / Year:					
2023-2024					
Description Preparation Date:					
25/ 1/ 2024					
Available Attendance Forms:					
Presence					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / Units 3.5					
Course administrator's name (mention all, if more than one name)					
Name: Sameer abed ali Email: sameer.abed@uoanbar.edu.iq Name: Gaith Ibrahim abed Email: Gaith 882020@ uoanbar.edu.iq					
Course Objectives					
Course Objectives:					
1- Identifying the most important strategic deciduous fruit varieties growing in the conditions of Iraq			.....	
2- Identify the appropriate environmental conditions the growth of deciduous fruits			.....	
3- Learn about the most important ways to reproduce grapes			.....	
4- Learn about the most important methods of pruning and breeding deciduous fruits					
Teaching and Learning Strategies					
Strategy		1- Through lectures. 2- Direct meeting with students (conversations). 3- Scientific trips to different agricultural work sites. 4- Hosting specialized professors to increase the scientific level of students.			
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Economical importance for fruit tree	Electronic lectures practical application laboratories fields	Questions, discussions examples
Second	2	1- Computer 2-Modern mobile	Factors effecting on fruit growth	Electronic lectures	Questions, discussions

		device 3-Observations and fi applications	and production	practical application laboratories fields	examples
Third	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Methods of fruit propagation	Electronic lectures practical application laboratories fields	Questions, discussions examples
Fourth	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Stock for fruit trees	Electronic lectures practical application laboratories fields	Questions, discussions examples
Fifth	2	First month exam			
Sixth	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Classification of fruit trees	Electronic lectures practical application laboratories fields	Questions, discussions examples
Seventh	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Dormancey and rest period	Electronic lectures practical application laboratories fields	Questions, discussions examples
Eighth	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Bud development	Electronic lectures practical application laboratories fields	Questions, discussions examples
Ninth	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Pollination and fertilization	Electronic lectures practical application laboratories fields	Questions, discussions examples
Tenth	2	Second month exam			
Eleven	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Sterility and Incompatibility	Electronic lectures practical application laboratories fields	Questions, discussions examples
Twelfth	2	1- Computer	Fruit set and	Electronic	Questions,

		2-Modern mobile device 3-Observations and field applications	development	lectures practical application laboratories fields	discussions examples
Thirteen	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Fruit thinning (perpure, kinds, methods)	Electronic lectures practical application laboratories fields	Questions, discussions examples
Fourteenth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	flower and fruit abscission	Electronic lectures practical application laboratories fields	Questions, discussions examples
Fifteen	2	Third month exam			
Course Evaluation					
1- Monthly exams. 2- Rapid Exams . 3- Evaluation through class activity. 4- By preparing scientific reports and making use of information networks. 5- final exams.					
Learning and Teaching Resources					
Required textbooks (curricular books, if any)			1- Deciduous fruit production 1 1980. Jabbar Hassan Al-Nuaimi. Albasrah university. 2- Deciduous fruit production 2 1980. Jabbar Hassan Al-Nuaimi. Albasrah university.		
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

Course Name:					
vegetable production / 1					
Course Code:					
AH1931					
Semester / Year:					
2023-2024					
Description Preparation Date:					
25/1/ 2024					
Available Attendance Forms:					
Theoretical material is given 100%. Practical material is given 100%					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / Units 3.5					
Course administrator's name (mention all, if more than one name)					
Name: Dr. omar hashim muslah Email: ohmosleh@uoanbar.edu.iq					
Course Objectives					
Course Objectives:					
1 Studying the various environmental factors affecting growth and yield formation			.....	
2- Learn about the methods of classifying vegetable crops.			.....	
3- Knowing the appropriate soil for each of agricultural crops			.....	
4- - Knowing the damages of temperature and intensity of lighting to crops					
Teaching and Learning Strategies					
Strategy:					
1- Follow the lecture method and use modern presentation methods.					
2- Conduct laboratory experiments.					
3- Direct dialogue with students by asking them questions					
4- Homework assignments (writing scientific reports).					
5- Learning through applied laboratory work					
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Introduction vegetable crops and the problems that hinder vegetable production in world and Iraq	Electronic and application laboratories fields	lectures practical Questions, discussions and examples
Second	2	1- Computer	Methods	Electronic	lectures Questions,

		2-Modern mobile device 3-Observations and field applications	classifying vegetable crops and their divisions	and application laboratories fields	pract	discussions and examples
Third	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	Environmental factors, including heat, light, humidity, weather and soil factors	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Fourth	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	Irrigation and Fertilization	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Fifth	2	First month exam				
Sixth	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	Seedling production and acclimatization	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Seventh	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	A study of vegetables belonging to the Crusader family, including (Lahana, Kalim, Shalgam, Radish, Cauliflower and Rashad) in terms of the original habitat, nutritional importance, growth factors, flowers, yield, pests and varieties.	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Eighth	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	A study of vegetables belonging to the Crusader family including (Lahana, Kalim, Shalgam, Radish, Cauliflower and Rashad) in terms of	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples

			original habit nutritional importance, growth factor flowers, yield pests and varieties		
Ninth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Study of vegetables belonging to legume family including (lentils, Beans(	Electronic and application laboratories fields	lectu pract a Questions, discussions and examples
Tenth	2	Second month exam			
Eleven	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Study of vegetables belonging to legume family including (lentils, Beans(	Electronic and application laboratories fields	lectu pract a Questions, discussions and examples
Twelfth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Narcissism includes (onions, garlic, and leeks) and the production of onions and seeds	Electronic and application laboratories fields	lectu pract a Questions, discussions and examples
Thirteen	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Narcissism includes (onions, garlic, and leeks) and the production of onions and seeds The vegetable includes (lettuce and Almazah(	Electronic and application laboratories fields	lectu pract a Questions, discussions and examples
Fourteenth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Narcissism includes (onions, garlic, and leeks) and the production of onions and seeds The vegetable includes (lettuce and Almazah(	Electronic and application laboratories fields	lectu pract a Questions, discussions and examples
Fifteen	2	Third month exam			
Course Evaluation					
1- Monthly exams. 2- Rapid exams .					

- 3- Evaluation through classroom activity.
- 4- By preparing scientific reports and taking advantage of information networks.
- 5- Final exams.

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Produced by Dr. Abdul-Jabbar Jassem and Dr. Fadel Mosleh Al-Mohammadi. Crops Production, Vegetables C1 + C2 Dr. Adnan Nasser Matlab and others 666 Advice in vegetable cultivation / methodological assistant Dr. Essam Al-Abadi 1989
Main references (sources)	Anonymous.1977. growing your own vegetables U.S.D.A. information & Agric
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name:					
Ornamental Plants / 1					
Course Code:					
AH1932					
Semester / Year:					
2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
Theoretical material is given 100%. Practical material is given 100%					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / Units 3.0					
Course administrator's name (mention all, if more than one name)					
Name: Dr. Mahmood Shaker Ahmed Email: mahmood.ahmed@uoanbar.edu.iq					
Course Objectives					
Identifying different plant species, their requirements, flowering seasons, and methods of propagation and division					
Teaching and Learning Strategies					
Strategy: 1- Follow the lecture method and use modern presentation methods. 2- Conduct laboratory experiments. 3- Direct dialogue with students by asking them questions 4- Homework assignments (writing scientific reports). 5- Learning through applied laboratory work					
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	3	1- Computer 2-Modern mobile device 3-Observations and field applications	Definition of ornamental science	Lectures and field application	Questions, discussions and examples
Second	3	1- Computer 2-Modern mobile device 3-Observations and field applications	Study of environmental factors	Lectures and field application	Questions, discussions and examples
Third	3	1- Computer 2-Modern mobile device 3-Observations and field applications	Study of internal factors	Lectures and field application	Questions, discussions and examples
Fourth	3	1- Computer	Rose Plant	Lectures and field	Questions,

		2-Modern mobile device 3-Observations and field applications		application	discussions and examples
Fifth	3				
Sixth	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Chrysanthemum Plant	Lectures and field application	Questions, discussions and examples
Sevent	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Carnation Plant	Lectures and field application	Questions, discussions and examples
Eighth	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Bulbs Flowering	Lectures and field application	Questions, discussions and examples
Ninth	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Annuals Plants	Lectures and field application	Questions, discussions and examples
Tenth	3				
Eleven	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Herbesus plant	Lectures and field application	Questions, discussions and examples
Twelf	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Midicin Plants	Lectures and field application	Questions, discussions and examples
Thirte	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Propacation Plants	Lectures and field application	Questions, discussions and examples
Fourt nth	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Indor plants	Lectures and field application	Questions, discussions and examples
Fiftee	3	Third month exam			
Course Evaluation					
1- Monthly exams.					

- 2- Rapid exams .
- 3- Evaluation through classroom activity.
- 4- By preparing scientific reports and taking advantage of information networks.
- 5- Final exams.

Learning and Teaching Resources

Ornamental Plant in Iraq	Simi Karim M. Amin
Main references (sources)	. Bhattacharjee, Supriya Kumar. 2006. Advances in Ornamental Horticulture. Vol. 3. Bulbous Ornamentals and Aquatic Plants. Pointer Publishers, India
Recommended books and references (scientific journals, reports...)	Bhattacharjee, Supriya Kumar. 2006. Advances in Ornamental Horticulture. Vol. 4. Ornamental Crop Production Technology. Pointer Publishers, India
Electronic References, Websites	http://en.Wikipedia.org/wiki/Rose_oil http://mousou3a.educdZ.com

Course Description Form

Course Name:					
Design and analysis of experiments					
Course Code:					
AH1933					
Semester / Year:					
2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
attendance is according to the lecture schedule					
Number of Credit Hours (Total) / Number of Units (Total)					
70 hours / Units 3.5					
Course administrator's name (mention all, if more than one name)					
Name: prof.Dr. Saad A. Mahmood Email: saad.abd@uoanbar.edu.iq					
Course Objectives					
1- The ability to understand the basics of design and analysis of experiments			.....	
2- Increasing the skills of primary school student in using statistical designs in analyzing agricultural experiment data			.....	
3- Students' ability to use these skills agricultural experiments			.....	
Teaching and Learning Strategies					
1- Follow the lecture method and use modern presentation methods.					
2- Direct dialogue with students by asking them questions					
3- Homework assignments (solving exercises and examples).					
4- Learning through applied designs.					
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	5	Understand and comprehend the concepts of designing and analyzing experiments	Introduction to some concepts of experimental design and analysis	White board	Questions, discussions and examples
Second	5	The ability to understand the steps of conducting an experiment	Steps to conduct the experiment	White board	Questions, discussions and examples

Third	5	Understand the data analysis steps to design a CRD	Completely randomized design	Whiteboard with personal computers	Questions, discussions and examples
Fourth	5	Learn how to use LSD test tables	LSD test	Whiteboard with personal computers	Questions, discussions and examples
Fifth	5	Learn how to use Duncan test tables	Duncan's multinomial test	Whiteboard with personal computers	
Sixth	5	Understand and comprehend the steps of analyzing RCBD design data	Randomized complete block design (RCBD).	Whiteboard with personal computers	Questions, discussions and examples
Seventh	2		First month exam		Questions, discussions and examples
Eighth	5	Understand the steps of data analysis with a Latin square design	Latin square	Whiteboard with personal computers	Questions, discussions and examples
Ninth	5	Understand the steps of analysis using factorial experiments	Global experiments	Whiteboard with personal computers	Questions, discussions and examples
Tenth	5	Ability to handle data in factorial experiments with two factors Factorial experiments with two factors	Factorial experiments with two factors	Factorial experiments with two whiteboard workers and personal computers	
Eleven	5	Ability to handle data in factorial experiments with three factors	Factorial experiments with three factors	Whiteboard with personal computers	Questions, discussions and examples
Twelfth	2		Second month exam		Questions, discussions and examples
Thirteen	5	Understand the steps of data analysis by designing split plots	Splinter design	Whiteboard with personal computers	Questions, discussions and examples
Fourteenth	5	Understand the steps of data analysis by designing split plots	Design of split pieces by three factors	Whiteboard with personal computers	Questions, discussions and examples
Fifteen	2		Third month exam		
Course Evaluation					
1- Monthly exams.					

- 2- Rapid exams (Quazat).
- 3- Evaluation through classroom activity
- 4- By solving exercises and examples of agricultural experimental designs
- 5- Final exams.

Learning and Teaching Resources

Required textbooks (curricular books, if any)	1-Statistics and experimental design Professor Dr. Shaker Musleh Al-Mohammadi Professor Dr. Fadel Musleh Al-Mohammadi 2- Design and analysis of agricultural traders Dr. Khasha Mahmoud Al-Rawi
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name:	
Plant Growth Regulators	
Course Code:	
AH1934	
Semester / Year:	
Autumn / 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
It is given in the presence of the students	
Number of Credit Hours (Total) / Number of Units (Total)	
75 hours / 3.5 units	
Course administrator's name (mention all, if more than one name)	
Name: Assist. Prof. Dr. Atheer Mohammed Ismail	
Email: ag.atheer.mohammed@uoanabr.edu.iq	
Course Objectives	
Course Objectives	<p>1- Introduce students to hormones and plant growth regulators, their types, and the common relationship between them in their synergistic or antagonistic effects, as well as their physiological effects that contribute to a large extent to plant growth and development</p> <p>2 - Enable students to know the terms related to plant growth regulators and their horticultural and field applications.</p> <p>3 - Recognize the relationship of growth regulators with the environmental factors surrounding the plant and their interaction with the growth stage and anatomical structure.</p> <p>4 - Recognize the biosynthetic pathways of plant hormones and the physiological effects on plant growth and development.</p> <p>5 - Field applications of plant growth regulators and their uses in the field of plant tissue culture technology.</p>
Teaching and Learning Strategies	
Strategy	<p>1- Follow the lecture style with the use of modern means of presentation.</p> <p>2- Conducting laboratory experiments.</p> <p>3- Direct dialogue with students by asking them questions.</p> <p>4- Homework (writing scientific reports).</p> <p>5- Learning through applied field practices.</p>

Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Plant Hormones (Preface and Terminology) Practical: Preparation and use of the different concentrations of plant growth regulators	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Second	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Auxins, Nature of auxins, Biosynthesis of auxin (IAA), Auxin transport (IAA), Auxins inhibition, Auxins mechanism of action, Physiological effects of auxins Practical: Practical examples of the use of plant growth regulators (Auxins)	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Third	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Gibberellins (GA ₅), Reasons for the variations in the structural formulas of gibberellins, Sites of gibberellins biosynthesis, Biosynthesis of gibberellins, Inhibitors of gibberellins biosynthesis, Gibberellins transport, GA ₅ mechanism of action, Physiological effects of gibberellins Practical: Practical examples of the use of plant growth regulators (Gibberellins)	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Fourth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Cytokinins (CK _s), Nature of cytokinins, Correlative growth phenomena, Biosynthesis of cytokinins, Cytokinins	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples

			transport, Cytokinins mechanism of action, Physiological effects of cytokinins Practical: Conversion systems and units of measurement	fields.	
Fifth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Exam	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Sixth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Ethylene Ethylene nature, Ethylene biosynthesis Ethylene transport, Ethylene mode of action, Ethylene degradation, Ethylene biosynthesis and action inhibitors, Ethylene and fruit ripening, Ethylene releasing compounds (ERC), Physiological effects of ethylene Practical: System of foliar application	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Seventh	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Abscisc acid (ABA), Nature of ABA, Abscisc acid biosynthesis, ABA transport, ABA mechanism of action, Physiological effects of abscisc acid Practical: Field applications of the foliar spray system	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Eighth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Plant growth retardants, Physiological effects of plant growth retardants Practical: Bioassays of plant growth regulators	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Ninth	5 hr.	1- Lectures	Theoretical:	Theoretical	Questions,

		<p>2- the computer</p> <p>3- A modern mobile device</p> <p>4- Observations and field application</p>	<p>Brassinosteroids (BR_s)</p> <p>Chemical characteristics of BR_s, Biosynthesis of BR_s, Transport and metabolism of brassinosteroids, Physiological effects of BR_s, Interaction of brassinosteroids with other hormones</p> <p>Practical: The pH of the solution and its interaction with plant growth regulators</p>	<p>lectures and practical application laboratories and fields.</p>	<p>discussions and examples</p>
Tenth	5 hr.	<p>1- Lectures</p> <p>2- the computer</p> <p>3- A modern mobile device</p> <p>4- Observations and field application</p>	Exam	<p>Theoretical lectures and practical application laboratories and fields.</p>	<p>Questions, discussions and examples</p>
Eleventh	5 hr.	<p>1- Lectures</p> <p>2- the computer</p> <p>3- A modern mobile device</p> <p>4- Observations and field application</p>	<p>Theoretical: Salicylic acid (SA), Salicylic acid levels in plants, Biosynthesis pathway of SA production, Conjugation and partitioning of salicylic acid, Movement and transport of salicylic acid, Physiological effects of salicylic acid, Role of SA in thermogenesis, Role of SA in pathogen defense</p> <p>Practical: Application on the physiological effects of plant growth regulators (Cytokinins and Ethylene)</p>	<p>Theoretical lectures and practical application laboratories and fields.</p>	<p>Questions, discussions and examples</p>
Twelfth	5 hr.	<p>1- Lectures</p> <p>2- the computer</p> <p>3- A modern mobile device</p>	<p>Theoretical: Jasmonic acid (JA), Jasmonic acid and plant responses, Jasmonic acid and plant</p>	<p>Theoretical lectures and practical</p>	<p>Questions, discussions and examples</p>

		4- Observations and field application	resistance, Nature of methyl jasmonic acid (MeJA), Jasmonic acid as endogenous growth regulator, Sites and biosynthesis of JA, Role and activity of JA, Physiological effects of jasmonic acid Practical: Application on the physiological effects of plant growth retardants	application laboratories and fields.	
Thirteenth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: Polyamines (PAs), Polyamines biosynthesis, Interaction between polyamines and other plant hormones Physiological effects of polyamines Practical: Tissue culture, micro propagation and applications of Plant growth regulators	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Fourteenth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Theoretical: The interaction between plant growth regulators and plant growth stage, anatomical structure and environmental factors Practical: Preparation and use of the different concentrations of plant growth regulators	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
Fifteenth	5 hr.	1- Lectures 2- the computer 3- A modern mobile device 4- Observations and field application	Exam	Theoretical lectures and practical application laboratories and fields.	Questions, discussions and examples
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.					

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Al-Khafaji, M. A. 2014. Plant Growth Regulators, Applications and Horticultural Uses. Ministry of Higher Education and Scientific Research, University of Baghdad, College of Agriculture, Iraq.
Main references (sources)	Davies, P. J. 2010. The plant hormones: Their nature, occurrence and functions. In: Plant Hormones: Physiology, Biochemistry and Molecular Biology, 833. Dordrecht; Boston, MA: Kluwer Academic Publishers.
Recommended books and references (scientific journals, reports...)	Halmann, M. 1990. Synthetic plant growth regulators. <i>Advances in Agronomy</i> , 43: 47-105.
Electronic References, Websites	

Course Description Form

1. Course Name:					
Irrigation and puncture					
2. Course Code:					
AH1935					
3. Semester / Year:					
First Semester, 2023-2024					
4. Description Preparation Date:					
25/01/2024					
5. Available Attendance Forms:					
Attendance (theoretical + practical)					
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)					
Prof. Dr. Shuker Mahmood Hasan smhasan@uoanbar.edu.iq					
8. Course Objectives					
<ol style="list-style-type: none"> 1. Teaching UG students the basics of drainage. 2. Teaching UG students the problems of drainage. 3. Teaching UG students the design and construction of drainage networks. 4. Teaching UG students the concepts of floods and methods of controlling them. 					
9. Teaching and Learning Strategies					
<p>Strategy</p> <ol style="list-style-type: none"> 1. Traditional means of explanation and clarification. 2. Electronic means of explanation and clarification. 3. Field work. 4. Adopting student groups for field work to take measurements. 5. Show illustrative pictures of the devices and their accessories. 					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
One	5	Drainage under standable, purpose drainage, advantages of drainage drainage in Iraq	Irrigation and puncture	A lecture with explanation and clarification	The exam
Two	5	Physical soil properties and its relation with drainage	Irrigation and puncture	A lecture with explanation and clarification	The exam
Three	5	Water flow in soils, pioseuilles la	Irrigation and puncture	A lecture with explanation and clarification	The exam

Four	First month exam - theoretical and practical				
Five		Evaporation, transpiration, infiltration	Irrigation and puncture	A lecture with explanation and clarification	The exam
Six	5	Stream flow measurement	Irrigation and puncture	A lecture with explanation and clarification	The exam
Seven	5	Water timer curves	Irrigation and puncture	A lecture with explanation and clarification	The exam
Eight	Second month exam - theoretical and practical				
Nine	5	Floods expectations	Irrigation and puncture	A lecture with explanation and clarification	The exam
Ten	Sub surface water and its resources				
Eleven	5	Soil Water and its vertical distribution	Irrigation and puncture	A lecture with explanation and clarification	The exam
Twelve	5	Ground water movement	Irrigation and puncture	A lecture with explanation and clarification	The exam
Thirteen	Third month exam - theoretical and practical				
Fourteen	General Review of the material				
Fifteen	Field Visit to drainage project in college				
11. Course Evaluation					
1- Daily exams. 2- Monthly tests. 3- Preparing and delivering seminars. 4- Daily posts. 5- preparing the special problem.					
12. Learning and Teaching Resources					
Required textbooks (curricular books any)		Investigation, design, implementation and maintenance / Dr. Mohsin M. Allami and Dr. Alaa S. Aljanabi			
Main references (sources)		Investigation, design, implementation and maintenance / Dr. Mohsin M. Allami and Dr. Alaa S. Aljanabi			
Recommended books and references (scientific journals, reports...)		Irrigation and Drainage / Laith I. Khalil			
Electronic References, Websites		Researches and Studies printed from Internet			

Course Description Form

Course Name:						
Plant Environment						
Course Code:						
AH1936						
Semester / Year:						
First Autumn 2023-2024						
Description Preparation Date:						
25/1/2024						
Available Attendance Forms:						
My attendance is according to the lecture schedule						
Number of Credit Hours (Total) / Number of Units (Total)						
30 hour						
59. Course administrator's name (mention all, if more than one name)						
Name: Dr. Mukhalad Hadi Ismali Email: mhalani@uoanbar.edu.iq						
60. Course Objectives						
Course Objectives					•	.....
1- Plant ecology studies environmental factors and their relationship with crops.					•	.....
2- It includes knowledge of climatic factors, soil factors, and biological factors					•	.....
3- Knowing the appropriate environment for each agricultural crop.						
4- Knowing the effects of temperature and light intensity on crops.						
5- Study of environmental pollution.						
6- Identify the water needs and factors that affect the water needs of the crop						
61. Teaching and Learning Strategies						
Strategy						
1- Follow the lecture method and use modern presentation methods						
2- Conduct laboratory experiments						
3- Direct dialogue with students by asking them questions						
4- Homework (writing scientific reports)						
62. Course Structure						
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method	
1- Course Structure						
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method	
First	2	1- Computer 2- Modern mobile device 3- Observations	Grapes and their economic importance and nutritional	Electronic lectures and practical application in laboratories	Questions, discussions and examples	

		and field applications	value	and fields	
Second	2	1- Computer 2-Modern mobile device 3- Observations and field applications	Grape classification	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Third	2	1- Computer 2-Modern mobile device 3- Observations and field applications	Preparing a nursery for the propagation of grapes in various ways	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Fourth	2	1- Computer 2-Modern mobile device 3- Observations and field applications	Suitable environment for farming	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Fifth	2	First month exam			
Sixth	2	1- Computer 2-Modern mobile device 3- Observations and field applications	The phenotypic structure of the grape tree	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Seventh	2	1- Computer 2-Modern mobile device 3- Observations and field applications	Annual cycle of grape vine growth	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Eighth	2	1- Computer 2-Modern mobile device 3- Observations	Grape propagation	Electronic lectures and practical application in laboratories	Questions, discussions and examples

		and field applications		and fields	
Ninth	2	1- Computer 2-Modern mobile device 3- Observations and field applications	Breeding and pruning grapes	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Tenth	2	Second month exam			
Eleven	2	1- Computer 2-Modern mobile device 3- Observations and field applications	Study of the small fruits (strawberry, raspberry, blackberry, blueberry, currant, cosberry, cranberry) in terms of their importance and the appropriate environment for them, their propagation, cultivation and service processes	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Twelfth	2	1- Computer 2-Modern mobile device 3- Observations and field applications	Methods of cultivation and production of strawberry, raspberry, blackberry, currant, blueberry, cranberry and service and harvest operations	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Thirteen	2	1- Computer 2-Modern mobile	Growing grapes on the slopes in	Electronic lectures and practical	Questions, discussions and examples

		device 3- Observations and field applications	northern Iraq	application in laboratories and fields		
Fourteenth	2	1- Computer 2-Modern mobile device 3- Observations and field applications	Some agricultural service operations for grapes	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples	
Fifteen	2	Third month exam				

63. Course Evaluation

- 1- Monthly tests
- 2- Rapid tests (COUZ)
- 3- Evaluation of classroom activity
- 4- Preparing scientific reports
- 5- Final exams

64. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Plant Ecology 2015. Dr. Iyad Hussein Al-Muaini. 2- Plant Ecology 2019. Dr. Abdul Rahim Sul Muhammad. Issam Abdullah Bashir and Dr. Kar Benjamin Esho.
Main references (sources)	Plant Ecology 2002. Kamal Hussein Shaltout. - Recent articles from the Internet and from specialized scientific journals.
Recommended books and references (scientific journals, reports...)	Taiz , L. and Zeiger,E.2006. Plant physiology,4 th ,Sunderland MA,U.S.A.
Electronic References, Websites	

Course Description Form

Course Name:					
Vegetable production / 2					
Course Code:					
AH19310					
Semester / Year:					
Second Semester, 2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
Theoretical material is given 100%. Practical material is given 100%					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / Units 3.5					
Course administrator's name (mention all, if more than one name)					
Name: Dr. omar hashim muslah Email: ohmosleh@uoanbar.edu.iq					
Course Objectives					
Course Objectives:					
1 Studying the various environmental factors affecting growth and yield formation			.....	
2- Learn about the methods of classifying vegetable crops.			.....	
3- Knowing the appropriate soil for each of agricultural crops To identify the methods of cultivation and production of vegetable crops belonging to various summer families			.....	
4- - Knowing the damages of temperature and intensity of lighting to crops					
Teaching and Learning Strategies					
Strategy:					
1- Follow the lecture method and use modern presentation methods.					
2- Conduct laboratory experiments.					
3- Direct dialogue with students by asking them questions.					
4- Homework assignments (writing scientific reports).					
5- Learning through applied laboratory work					
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	1- Computer 2-Modern mobile device 3-Observations and	A study of the crops the nightshade family including potatoes	Electronic and application laboratories	lectu pract Questions, discussions and examples

		field applications		fields	
Second	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Taught in terms of origin and environmental needs	Electronic and application laboratories fields	lectu pract a Questions, discussions and examples
Third	2	1- Computer 2-Modern mobile device 3-Observations and field applications	According to the stage of growth, fertilization, harvesting and varieties	Electronic and application laboratories fields	lectu pract a Questions, discussions and examples
Fourth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Eggplant includes a study of the importance of the crop and factors. The environment, growth, flowering, knotting, fruit ripening, and most importantly pests	Electronic and application laboratories fields	lectu pract a Questions, discussions and examples
Fifth	2	First month exam			
Sixth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Pepper including the study of the importance of the crop and factors	Electronic and application laboratories fields	lectu pract a Questions, discussions and examples
Seventh	2	1- Computer 2-Modern mobile device 3-Observations and field applications	A study of vegetables belonging to the Crucifer family, including (Lahana, Kalim, Shalgam, Radish, Cauliflower and Rashad) in terms of the original habitat, nutritional importance, growth factors, flowers, yield, pests and varieties.	Electronic and application laboratories fields	lectu pract a Questions, discussions and examples
Eighth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Cucumber includes studying the importance of the crop and the factors	Electronic and application laboratories fields	lectu pract a Questions, discussions and examples
Ninth	2	1- Computer	Watermelon,	Electronic	lectu Questions,

		2-Modern mobile device 3-Observations and field applications	including the study of flowers and fruit set Changes that occur at maturity and cultivation methods the crop	and application laboratories fields	pract discussions and examples
Tenth	2	Second month exam			
Eleven	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Musk melon , including the study of flowers and fruit set Changes that occur at maturity and cultivation methods the crop	Electronic and application laboratories fields	lectu pract Questions, discussions and examples
Twelfth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Squash, zucchini, arac, asala, and cucumber, and includes Study of environmental factors, flowering, knots, and most importantly Varieties and pests	Electronic and application laboratories fields	lectu pract Questions, discussions and examples
Thirteen	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Narcissism includes (onions, garlic, and leeks) and the production of onions and seeds The vegetable includes (lettuce and Almazah)	Electronic and application laboratories fields	lectu pract Questions, discussions and examples
Fourteenth	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Study of environmental factors as well as sweet corn	Electronic and application laboratories fields	lectu pract Questions, discussions and examples
Fifteen	2	Third month exam			
Course Evaluation					
1- Monthly exams. 2- Rapid exams . 3- Evaluation through classroom activity. 4- By preparing scientific reports and taking advantage of information networks. 5- Final exams.					
Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Produced by Dr. Abdul-Jabbar Jassem and Dr. Fadel		

	Mosleh Al-Mohammadi. Crops Production, Vegetables + C2 Dr. Adnan Nasser Matlab and others 666 Advice in vegetable cultivation / methodological assistant Dr. Essam Al-Abadi 1989
Main references (sources)	Anonymous.1977. growing your own vegetables U.S.D.A. information Agric
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name:					
Ornamental Plants / 2					
Course Code:					
AH19311					
Semester / Year:					
Spring /2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
Theoretical material is given 100%. Practical material is given 100%					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / Units 3.0					
Course administrator's name (mention all, if more than one name)					
Name: Dr. Mahmood Shaker Ahmed Email: mahmood.ahmed@uoanbar.edu.iq					
Course Objectives					
Identifying different plant species, their requirements, flowering seasons and methods of propagation and division					
Teaching and Learning Strategies					
Strategy: 1- Follow the lecture method and use modern presentation methods. 2- Conduct laboratory experiments. 3- Direct dialogue with students by asking them questions 4- Homework assignments (writing scientific reports). 5- Learning through applied laboratory work					
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	3	1- Computer 2-Modern mobile device 3-Observations and field applications	Study of ornamental trees	Lectures and field application	Questions, discussions and examples
Second	3	1- Computer 2-Modern mobile device 3-Observations and field applications	Study of ornamental Shrubs	Lectures and field application	Questions, discussions and examples
Third	3	1- Computer 2-Modern mobile device	Climbers Plants	Lectures and field application	Questions, discussions and examples

		3-Observations and field applications			
Fourth	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Hydgs Plants	Lectures and field application	Questions, discussions and examples
Fifth	3				
Sixth	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Cacti Plants	Lectures and field application	Questions, discussions and examples
Seventh	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Hydrophytes Plants	Lectures and field application	Questions, discussions and examples
Eighth	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Cut Flowers	Lectures and field application	Questions, discussions and examples
Ninth	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Propagation plants	Lectures and field application	Questions, discussions and examples
Tenth	3				
Eleventh	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Lawns	Lectures and field application	Questions, discussions and examples
Twelfth	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Arangement Flowers	Lectures and field application	Questions, discussions and examples
Thirteenth	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Ornamental herbs	Lectures and field application	Questions, discussions and examples
Fourteenth	3	1- Computer device 2-Modern mobile device 3-Observations and field applications	Miniature gardens	Lectures and field application	Questions, discussions and examples

Fiftee 3		Third month exam
Course Evaluation		
1- Monthly exams. 2- Rapid exams . 3- Evaluation through classroom activity. 4- By preparing scientific reports and taking advantage of information networks. 5- Final exams.		
Learning and Teaching Resources		
Ornamental Plant in Iraq	Simi Karim M. Amin	
Main references (sources)	. Bhattacharjee, Supriya Kumar. 2006. Advances in Ornamental Horticulture. Vol. 3. Bulbous Ornamentals and Aquatic Plants. Pointer Publishers, India	
Recommended books and references (scientific journals, reports...)	Bhattacharjee, Supriya Kumar. 2006. Advances in Ornamental Horticulture. Vol. 4. Ornamental Crop Production Technology. Pointer Publishers, India	
Electronic References, Websites	http://en.Wikipedia.org/wiki/Rose oil http://mousou 3a.educdZ.com	

Course Description Form

Course Name:					
Apiculture					
Course Code:					
AH19312					
Semester / Year:					
Second semester, 2023-2024					
Description Preparation Date:					
25/1/2024					
19. Available Attendance Forms:					
Lectures					
20. Number of Credit Hours (Total) / Number of Units (Total):					
75h					
21. Course administrator's name (mention all, if more than one name)					
Lecturer . Mohammed Majid ABED Email: muhammed.abed@uoanbar.edu.iq					
22. Course Objectives					
The beekeeping course, both practical and theoretical, aims to introduce students to bee insect, what is the economic and medical importance of raising this insect, how to deal with it correctly, and what is the benefit of beekeeping.					
23. Teaching and Learning Strategies					
<p>A- Knowledge and Understanding</p> <p>A1- Understand the science of beekeeping</p> <p>A2- Identify the types and breeds of honey bees</p> <p>A 3- Distinguish between the different pests that infect bees.</p> <p>A4- Knowing the economic importance of beekeeping</p> <p>A 5- Knowing the correct and modern methods of beekeeping</p> <p>A6 - Real knowledge of practical methods for managing the apiary.</p>					
24. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Initial knowledge about bees	the introduction Development and breeding of bees and signed by the animal kingdom and its types Taxonomic position of bees in the	Lecture	quiz

			animal kingdom Beekeeping in Iraq Breeds of bees in Iraq		
2	5	Knowledge of beekeeping areas and life behavior	The best beekeeping areas in Iraq Sources of nectar and pollen The life behavior of honey bees The life cycle of honey bees mating behavior egg laying behavior	Lecture	Quiz
3	5	Know the divisions and ages of the bee insect	Periods of immature roles for honeybees larval stage virgins stage adult stage Formal traits between queens, workers, and ma	Lecture	Quiz
4	5	Knowing the economic importance of beekeeping	The economic importance of beekeeping Honey and its benefits Royal food and its benefits Wax and its benefits Pollen and its benefits Bee venom and its benefits Propolis and its benefits	Lecture	Quiz
5	5	Know the behavior of mating and laying eggs	Honey bee brood production Economical plant pollination Production of fertilized queens and divisions business of individuals Queen's business Housework work	Lecture	Quiz
6	5	Knowing the work of the workers throughout the year	The work of the field workers collect nectar pollen collection Pollen collection mechanism collecting water water use	Lecture	quiz
7	5	Learn about	External anatomy of a	Lecture	Quiz

		the external anatomy of a honey bee	honey bee The head and its appendages The chest and its appendages The abdomen and its appendages the Queen female kingdom Factors affecting the construction of royal houses Queen production supplies Conditions of the nanny sect Breeding of virgin queens queen production		
8	5	Learn about the methods and purpose of artificial feeding	robbery industrial feeding nutrition purposes Signs of a nutritional deficiency types of nutrition Important notes on nutrition Feeding times and concentrations of nutrient solutions types of food	Lecture	Quiz
9	5	Recognize the trapping and ways to prevent	natural reproduction (scattering) When does expulsion happen? Reasons for the occurrence of swarming swarming damage spurting marks Methods of preventing swarming	Lecture	Quiz
10	5	Identifying late parcels and ways to keep parcels	late swarming expulsion and substitution Keeping and housing parcels Some cases of parcel holding Division of sects The stages of producing good denominations	Lecture	quiz

11	5	Learn about honey sorting and packing tools	honey sorting tools Honey sorting tools from modern cells excretions honey filter Packing tools after sorting	Lecture	Quiz
12	5	Learn how to sell honey and packaging	packing containers Honey discs and strips Sorting honey from municipal cells Honey sorting for amateurs and beginners Auxiliary tools for the screening process	Lecture	Quiz
13	5	Knowing the locations of the beekeepers and the work of the beekeeper	Apiaries sites disintegrated The work of the beekeeper during the months of the year Actions that honey bees do themselves Dispersal measures taken by the beekeeper Biological and nutritional status of cells before and after dispersal Indoors in the basement Cell dispersal materials	Lecture	Quiz
14	5	Identify diseases and pests of bees	bee pest diseases brood diseases American brood rot disease Nosemia disease bee paralysis Deformed wings virus	Lecture	Quiz
15	5	Learn about some bee pests	Varroa disease Wax moths Great Wax Moth Minor wax moth red hornet Abi Khudair bird	Lecture	Quiz

25. Course Evaluation

26. Learning and Teaching Resources

Required textbooks (curricular books any)

Main references (sources)

Beekeeping for amateurs and beginners / Abdul

	Baqi Muhammad Al-Ali _ 2011
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://m.facebook.com/groups/703717849742773?view_permalink&id=1781528738628340 https://m.facebook.com/groups/703717849742773?view_permalink&id=1781525558628658 https://m.facebook.com/groups/703717849742773?view_permalink&id=1781524501962097 https://m.facebook.com/groups/703717849742773?view_permalink&id=1641398395974709 . https://m.facebook.com/groups/703717849742773?view

Course Description Form

Course Name:	
Horticulture plant diseases	
Course Code:	
AH19313	
Semester / Year:	
SPRING 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
IN CLASS	
Number of Credit Hours (Total) / Number of Units (Total):	
5HOURS/3.5 UNITS	
Course administrator's name (mention all, if more than one name)	
Name: Assist. Prof. Dr. Jasim Mahmood Abed ag.jasim.mahmoodl@uoanbar.edu.iq	
Course Objectives	
Course Objectives	<ol style="list-style-type: none"> 1- Knowledge and UnderstandingA1. Understa the concept of plant disease 2. Distinguishing between communicable and non-communicable diseases 3. Distinguishing between the types of pathogens: fungal, bacterial, alphaviral, nematode and others 4. The most important losses caused by vegetable diseases in open and protected agriculture 5. Knowing the most important diseases that affect vegetable crops in open and protected agriculture. 6 . Identify the characteristics of protected agriculture in terms of productivity and the environments it requires.
Teaching and Learning Strategies	
Strategy	Teaching therological parts in class by using data show and some new methods, Teaching the practical part through field visits/work in the department's laboratories
Course Structure	

Course Description Form

Course Name:					
plant Breeding					
Course Code:					
AH19314					
Semester / Year:					
second semester, 2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
1- Theoretical subject: given in class 2- Practical subject: given in greenhouses					
Number of Credit Hours (Total) / Number of Units (Total)					
5 hours / number of units 3					
Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. Hussein Awad Aday Email: ag.hussain.awad@uoanbar.edu.iq					
Course Objectives					
Course Objectives		<p>Introduction to plant petrification and a historical overview of the subject.</p> <p>Learn about plant breeding methods and their type</p> <p>How to perform the hybridization process, types of flowers, bagging methods, and pollination.</p> <p>Training on tools, how to select and choose the desired genetic traits</p> <p>Identifying male infertility, its causes, incompatibility and its causes</p> <p>Self-breeding and cross-pollination methods</p>			
Teaching and Learning Strategies					
Strategy		<p>1- Follow the lecture method and use modern presentation methods.</p> <p>2- Conducting field experiments for various crops.</p> <p>3- Direct dialogue with students by asking them questions.</p> <p>4- Homework assignments (writing scientific reports).</p> <p>5- Learning through practical hybridization and cultivation genetic compositions.</p>			
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	five hours	1- Computer 2- A modern mobile device 3-Field observations and applications	Introduction and historical overview of plant breeding. Goals Types of Plant breeding	Electronic lectures and practical application in Laboratories and say	Questions, discussions and examples

second	five hou	1- Computer 2- A modern mo device 3-Field observations applications	Hybridization types of Hybrid	Electronic lectures and practical application in Laboratories say	Questions, discussions and Examples
third	five hou	1- Computer 2- A modern mo device 3-Field observations applications	Selection and methods Election	Electronic lectures and practical application in Laboratories say	Questions, discussions and Examples
fourth	five hou	1- Computer 2- A modern mo device 3-Field observations applications	Types of Selection	Electronic lectures and practical application in Laboratories say	Questions, discussions and Examples
Fifth	five hou		First month exam		
sixth	five hou	1- Computer 2- A modern mo device 3-Field observations applications	Male sterility Practical cultivatio Breeds For cross breeding training	Electronic lectures and practical application in Laboratories and say	Questions, discussions and Examples
seventh	five hou	1- Computer 2- A modern mo device 3-Field observations applications	Selection and its types	Electronic lectures and practical application in Laboratories and say	Questions, discussions and Examples
eighth	five hou	1- Computer 2- A modern mo device 3-Field observations	Election methods	Electronic lectures and practical application in	Questions, discussions and examples

		applications		Laboratories and say	
Ninth	five hou	1- Computer 2- A modern mo device 3-Field observations applications	Breeding to resist Diseases	Electronic lectures and practical application in Laboratories and say	Questions, discussions and examples
tenth	five hou	1- Computer 2- A modern mo device 3-Field observations applications	Plant breeding Self-pollinating	Electronic lectures and practical application in Laboratories and say	Questions, discussions and examples
eleventh	five hou	1- Computer 2- A modern mo device 3-Field observations applications	Breeding cross-pollinated plants	Electronic lectures and practical application in Laboratories and say	Questions, discussions and examples
twelveth	five hou	1- Computer 2- A modern mo device 3-Field observations applications	Plant breeding Vegetative reproduction	Electronic lectures and practical application in Laboratories and say	Questions, discussions and examples
Thirteenth	five hou	1- Computer 2- A modern mo device 3-Field observations applications	Breeding using Genetic Engineeri And modern technologies	Electronic lectures and practical application in Laboratories and say	Questions, discussions and examples
fourteenth	five hou		First month exam		

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

Recommended books and references (scientific journals, reports...)

Electronic References, Websites

Course Description Form

Course Name:	
Medicinal and aromatic plants	
Course Code:	
AH19315	
Semester / Year:	
second Semester, 2023-2024	
Description Preparation Date:	
25-1-2024	
Available Attendance Forms:	
Weekly	
Number of Credit Hours (Total) / Number of Units (Total)	
Five hours a week 3.5 units	
Course administrator's name (mention all, if more than one name)	
Name: Assist. Prof. Dr. Osama Hussein Mahidi Email: ag.osama.hussein@uoanbar.edu.iq	
Course Objectives	
Identifying medicinal plants, their divisions, sources, the nature of their active compounds and methods of extracting them	
Teaching and Learning Strategies	
Strategy	1- Lecture and presentation 2- Discussion 3- Presentation of academic problems 4- Finding appropriate solutions 5- Brainstorming 6- Collaborative style 7- Study previous lectures

Course Description Form

1. Course Name:	
deciduous fruit / 2	
2. Course Code:	
AH19316	
3. Semester / Year:	
SPRING 2023-2024	
4. Description Preparation Date:	
25/1/2024	
5. Available Attendance Forms:	
IN CLASS	
6. Number of Credit Hours (Total) / Number of Units (Total):	
5HOURS/3.5 UNITS	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Samir abd ali	
8. Course Objectives	
Course Objectives	<p>Identifying the most important strategic deciduous fruit varieties growing in the conditions of Iraq</p> <p>Identify the appropriate environmental conditions for the growth of deciduous fruits</p> <p>Learn about the most important ways to reproduce grapes</p> <p>Learn about the most important method of pruning and breeding deciduous fruit</p>
9. Teaching and Learning Strategies	
Strategy	Teaching therological parts in class by using data show and some new methods, Teaching the practical part through field visits/work in the department's laboratories
10. Course Structure	
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	

Main references (sources)	Books and scientific in > deciduous fruit trees
Recommended books and references (scientific journals, reports...)	
Electronic Websites	Referenc Youtube.com Springer.com

Course Description Form

1. Course Name:					
English Language/3					
2. Course Code:					
AH19317					
3. Semester / Year:					
SECOND / 2023-2024					
4. Description Preparation Date:					
25/1/2024					
5. Available Attendance Forms:					
DAYLY					
6. Number of Credit Hours (Total) / Number of Units (Total)					
1 HOUER-1 UNIT					
7. Course administrator's name (mention all, if more than one name)					
Name: Muhammed Rasheed Muhammed Email: muhammed.rasheed@unoanbar.edu.iq					
8. Course Objectives English Language/3					
Course Objectives					
9. Teaching and Learning Strategies					
Strategy		Theoretical 1 hour			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
14	1	BScs.	English Language/3	Theoretical	Daily, monthly and semester 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)			NEW HEADWAY PLUS		
Main references (sources)					

Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	You Tub Chanel

Course Description Form

Course Name:					
Plant Tissue Culture					
Course Code:					
AH1940					
Semester / Year:					
First Semester, 2023-2024					
Description Preparation Date:					
25/1/ 2024					
Available Attendance Forms:					
Theoretical material is given 100%. Practical material is given 100%					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / Units 3.5					
13. Course administrator's name (mention all, if more than one name)					
Name: Dr. Yasir Sayel Sekhi Email: yassirsayel@uoanbar.edu.iq					
14. Course Objectives					
Course Objectives: 1- Its use in the field of plant breeding, improvement and conservation Genetic sources 2- Rapid multiplication of plants. 3- Production of secondary compounds and medical drugs. 4- Producing virus-free plants			<ul style="list-style-type: none"> • • • 		
15. Teaching and Learning Strategies					
Strategy: 1- Follow the lecture method and use modern presentation methods. 2- Conduct laboratory experiments. 3- Direct dialogue with students by asking them questions 4- Homework assignments (writing scientific reports). 5- Learning through applied laboratory work					
16. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	1- Computer device 2-Modern mobile 3-Observations and field applications	Introduction and history of plant tissue culture	Electronic and application laboratories fields	lectures and practical questions, discussions and examples
Second	2	1- Computer 2-Modern mobile	Physiological factors affect	Electronic and	lectures and practical questions, discussions

		device 3-Observations and field applications	growth morphogenesis	application laboratories fields	and examples
Third	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	Using tissue culture for plant propagation techniques	Electronic and application laboratories fields	lectu pract Questions, discussions and examples
Fourth	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	Applications for plant cell and tissue culture in the field of plant breeding and improvement to produce healthy plants from infections with specific pathogens.	Electronic and application laboratories fields	lectu pract Questions, discussions and examples
Fifth	2	First month exam			
Sixth	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	Secondary Metabolites Production	Electronic and application laboratories fields	lectu pract Questions, discussions and examples
Seventh	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	Callus cultures	Electronic and application laboratories fields	lectu pract Questions, discussions and examples
Eighth	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	Plant tissue culture application	Electronic and application laboratories fields	lectu pract Questions, discussions and examples
Ninth	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	Isolation Culture Protoplast	Electronic and application laboratories fields	lectu pract Questions, discussions and examples
Tenth	2	Second month exam			
Eleven	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	Embryo Culture Embryogenesis	Electronic and application laboratories fields	lectu pract Questions, discussions and examples
Twelfth	2	1- Computer	Somatic	Electronic	lectu Questions,

		2-Modern mobile device 3-Observations and field applications	Embryogenesis	and application laboratories fields	pract	discussions and examples
Thirteen	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	Anther and pollen culture	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Fourteenth	2	1- Computer device 2-Modern mobile device 3-Observations and field applications	Synthetic Technology	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Fifteen	2	Third month exam				
17. Course Evaluation						
1- Monthly exams. 2- Rapid exams . 3- Evaluation through classroom activity. 4- By preparing scientific reports and taking advantage of information networks. 5- Final exams.						
18. Learning and Teaching Resources						
Required textbooks (curricular books, if any)			Muhammad Abbas Salman / Basics of plant cell and tissue culture / University of Baghdad			
Main references (sources)			George, E. F., Hall, M. A., & De Klerk, G. J. (2008). Plant propagation by tissue culture 3rd Edition. Netherland, The Back Ground Springer.			
Recommended books and references (scientific journals, reports...)			Plant Cell, Tissue and Organ Culture (PCTOC) https://link.springer.com/journal/11240			
Electronic References, Websites						

Course Description Form

Course Name:	
Evergreen Fruits	
Course Code:	
AH1941	
Semester / Year:	
Autumn Semester, 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
<p style="text-align: center;">Theoretical and practical lectures according to the weekly schedule Field application for the practical aspect Field visits</p>	
Number of Credit Hours (Total) / Number of Units (Total)	
30 hours /3.5 unit	
Course administrator's name (mention all, if more than one name)	
<p style="text-align: center;">Name: Prof.Dr.Thamer Hameed Reja Email: ag.thamer.hameed@uoanbar.edu.iq</p>	
Course Objectives	
<p>Course Objectives</p> <p>A- Introducing the importance of sustainable fruit types, methods of propagating and caring for them, and the possibility of expanding their cultivation.</p> <p>B- Paying attention to the productivity and development of evergreen fruit cultivation.</p> <p>C- Knowing the climatic environment for each type of fruit and ways to adapt to the climate in Iraq.</p> <p>D- Paying attention to how to establish evergreen orchards and the dimensions of cultivation for each type, while identifying the water and fertilizer needs of each type of evergreen fruit.</p>	
Teaching and Learning Strategies	
Strategy	<ol style="list-style-type: none"> 1. Preparing presentations that explain the basic concepts in the field of horticulture and providing detailed lectures on various topics. Use pictures and illustrations to better illustrate ideas and concepts. 2. Organize interactive sessions and workshops that allow participants to actively participate in the learning process. Practical models of growing and establishing sustainable orchards are presented, and participants are encouraged to participate and actually apply. 3. Organize field trips to government orchards, nurseries and local farms. Explain how to care and maintain it. 4. Using multimedia, mobile applications, and educational programs to provide information and interact with students

Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First week	5	Identify the climatic zones and climatic needs of different fruits	importance of evergreen fruit trees, and identify the climatic division of fruit trees	Theoretical lectures and field and laboratory applications	Questions, discussions and examples
Second week	5	Identify the citrus genus and the divisions of each genus according to the species it contains.	Possibility of identifying the phenotypic characteristics of different citrus species	Theoretical lectures and field and laboratory applications	Questions, discussions and examples
Third week	5	The ability to identify the phenotypic characteristics of different citrus species and hybrids resulting from crossbreeding between different species	Identify the citrus genera and the divisions of each genus according to the species they contain, in addition to the hybrids resulting from crossbreeding between these species and genera.	Theoretical lectures and field and laboratory applications	Questions, discussions and examples
Fourth week	5	The ability to distinguish different varieties, of course, by their vegetative system	Botanical description, nutritional value, climatic conditions, plant divisions, and internal and external factors affecting the growth of citrus trees.	Theoretical lectures and field and laboratory applications	Questions, discussions and examples
Fifth week	5	Identify the climatic factors such as high and low temperatures, the negative damages resulting from them, and ways to protect	Climatic factors affecting citrus trees, methods of protection from temperature damage, and methods of	Theoretical lectures and field and laboratory applications	Questions, discussions and examples

		them	propagation.		
Sixth week	5	Diagnosing citrus rootstocks suitable for grafting	Citrus origins, crop service operations, pests and diseases that affect citrus trees.	Theoretical lectures and field and laboratory applications	Questions, discussions and examples
Seventh week	5	Identifying the areas of olive propagation, the environment suitable for the propagation of olive trees, and the biology of flowers and fruits.	Olives, the original habitat, spread, the appropriate environment for the spread of olive trees and the biology of flowers and fruits.	Theoretical lectures and field and laboratory applications	Questions, discussions and examples
Eighth week	5	Identify the types of soil suitable for olive cultivation and the propagation methods used	Specifications of the soil in which olive trees are grown and the propagation methods used.	Theoretical lectures and field and laboratory applications	Questions, discussions and examples
Ninth week	5	Diagnosing the most important problems due to the lack of spread of olive cultivation in Iraq	Obstacles to olive tree cultivation, crop service, pollination, and knotting operations.	Theoretical lectures and field and laboratory applications	Questions, discussions and examples
Tenth week	5	Getting to know the original place of banana cultivation and the most important service operations	Bananas, original habitat, types, suitable environment for agriculture, agricultural operations in banana fields	Theoretical lectures and field and laboratory applications	Questions, discussions and examples
Eleventh week	5	The possibility of identifying the pineapple fruit, its place of spread, and the conditions affecting it	Pineapple, original habitat, suitable environment, climatic conditions, pollination and contraction, and methods of	Theoretical lectures and field and laboratory applications	Questions, discussions and examples

			reproduction		
Twelveth week	5	Diagnosing and knowing the original habitat of the mango, contract conditions, pollination, and contract problems	Mango, original habitat, botanical description, environmental conditions, flowering, knotting, pollination and knotting problems.	Theoretical lectures and field and laboratory applications	Questions, discussions and examples
Thirteenth week	5	Diagnosing and knowing the original habitat of the mango, contract conditions, pollination, and contract problems	Mango, original habitat, botanical description, environmental conditions, flowering, knotting, pollination and knotting problems	Theoretical lectures and field and laboratory applications	Questions, discussions and examples
Fourteenth week	5	Identifying the Sidr fruit and the conditions affecting its growth	Sidr, original habitat, botanical description, and methods of propagation.	Theoretical lectures and field and laboratory applications	Questions, discussions and examples
Fifteenth week	5	An exam, and a visit to one of the evergreen fruit orchards and propagation nurseries.	An exam, and a visit to one of the evergreen fruit orchards and propagation nurseries	Theoretical lectures and field and laboratory applications	Questions, discussions and examples

Course Evaluation

- 1- Monthly written exams.
- 2- Direct oral exams and field work in the college's fields.
- 3- Through classroom activities and tests.

Learning and Teaching Resources

Required textbooks (curricular books, if any)	<ol style="list-style-type: none"> 1- Evergreen fruit. 1990. Dr. Makki Alwan and Alaa Abdel Razzaq. 2- Production of evergreen fruits. 1991. Dr. Daoud Abdullah Daoud and Jawad Dhanoun
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	Agha.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	1- Modern scientific research. 2- Recent articles from the Internet and from specialized scientific journals.
Electronic References, Websites	

Course Description Form

Course Name:					
Vegetable Seeds production					
Course Code:					
AH1942					
Semester / Year:					
First Semester, 2023-2024					
Description Preparation Date:					
25/ 1/ 2024					
Available Attendance Forms:					
Theoretical material is given 65%. Practical material is given 35%					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / Units 3.5					
Course administrator's name (mention all, if more than one name)					
Name: Dr. Hmood gharbi khaleefa Email: ag.hammond.gharbi@uoanbar.edu.iq					
Course Objectives					
Course Objectives: - Study of vegetable crops, their spread, areas of cultivation, and factors affecting seed production -Study the methods used in extracting seeds from soft and dry fruits - Study the environmental conditions suitable for growing each crop and the factors affecting seed production -Know the economic importance of seed production -Methods used in storing and marketing important seeds in the world			..... ..... .....	
Teaching and Learning Strategies					
Strategy: 1- Follow the lecture method and use modern presentation methods. 2- Conduct laboratory experiments. 3- Direct dialogue with students by asking them questions. 4- Homework assignments (writing scientific reports). 5- Learning through applied laboratory work					
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	Seed science and the importance of seeds	Seed production/technology	Electronic lectures and practical	Questions, discussions and

				applicati in laborator s and fiel	examples
Second	2	The importance of seed production	Seeds	Electroni lectures and practical applicati in laborator s and fiel	Questions , discussio ns and examples
Third	2	Methods of reproduction of flowering plants	Seed production/technology	Electroni lectures and practical applicati in laborator s and fiel	Questions , discussio ns and examples
Fourth	2	How reproductive parts are formed in flowers	Seed production/technology	Electroni lectures and practical applicati in laborator s and fiel	Questions , discussio ns and examples
Fifth	2	First month exam			
Sixth	2	Types of pollination and fertilization	Seed production/technology	Electroni lectures and practical applicati in laborator s and fiel	Questions , discussio ns and examples
Seventh	2	Seed formation in flowering plants	Seeds	Electroni lectures and practical applicati in laborator s and fiel	Questions , discussio ns and examples
Eighth	2	Chemical components of seeds/seed grading	Seed production/technology	Electroni lectures and practical	Questions , discussio ns and

				applicati in laborator s and field	examples
Ninth	2	The importance of seeds/seed industry and its production centers	Seed production/technology	Electroni lectures and practical applicati in laborator s and field	Questions , discussio ns and examples
Tenth	2	Second month exam			
Eleven	2	Production of improved seeds/breeder seeds/basics/improved/ce ied seeds	Seed production/technology	Electroni lectures a practical applicati in laborator and field	Questions , discussio ns and examples
Twelfth	2	Seed quality	Seed production/technology	Electroni lectures a practical applicati in laborator and field	Questions , discussio ns and examples
Thirteen	2	Seed harvesting and extraction methods	Seed production/technology	Electroni lectures a practical applicati in laborator and field	Questions , discussio ns and examples
Fourteen	2	Examination of seeds/purity/vitality/moist e	Seed production/technology	Electroni lectures a practical applicati in laborator and field	Questions , discussio ns and examples
Fifteen	2	Third month exam			
Course Evaluation					
1- Monthly exams. 2- Rapid exams . 3- Evaluation through classroom activity. 4- By preparing scientific reports and taking advantage of information networks. 5- Final exams.					
Learning and Teaching Resources					

Required textbooks (curricular books, if any)	1- Testing, defining and protecting new vegetable crop varieties 2008 2- Recent articles from the Internet and from specialized scientific journals and journals 3- Plant breeding and improvement 2020 Fouad Razzaq Al-Burki, Al-Muthanna University
Main references (sources)	Principles of field crop production Seed production
Recommended books and references (scientific journals, reports...)	Dr. Mohamed T Zalama, Seed Tech. R. Depart., Field Crops R. Instit. ARC., dr.mtz.1979@gmail.com.
Electronic References, Websites	

Course Description Form

Course Name:					
protected agriculture					
Course Code:					
AH1943					
Semester / Year:					
First semester, 2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
1- Theoretical subject: given in class 2- Practical subject: given in greenhouses					
Number of Credit Hours (Total) / Number of Units (Total)					
5 hours / number of units 3					
Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. Hussein Awad Aday Email: ag.hussain.awad@uoanbar.edu.iq					
Course Objectives					
Course Objectives			<p>Introducing protected facilities and their types.</p> <p>Identify the reasons for using protected systems.</p> <p>Plants that should be grown in protected environments.</p> <p>Plant diseases that we face in the protected environment</p>		
Teaching and Learning Strategies					
Strategy		<p>1- Follow the lecture method and use modern presentation methods.</p> <p>2- Conducting field experiments for various crops.</p> <p>3- Direct dialogue with students by asking them questions.</p> <p>4- Homework assignments (writing scientific reports).</p> <p>5- Learning through practical hybridization and cultivation genetic compositions.</p>			
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	five hou	1- Computer 2- A modern mok device 3-Field observations applications	Introduction and historical overview of The Development of agriculture Protected.	Electronic lectures and practical application in Laboratories say	Questions, discussions and examples

second	five hou	1- Computer 2- A modern mo device 3-Field observations a applications	Factors affecting Creating greenhouses And choose the location the appropriate	Electronic lectures and practical application in Laboratories say	Questions, discussions and Examples
Third	five hou	1- Computer 2- A modern mo device 3-Field observations a applications	The stages follow in Creating greenhouses	Electronic lectures and practical application in Laboratories say	Questions, discussions and Examples
fourth	five hou	1- Computer 2- A modern mo device 3-Field observations a applications	Practical applications Scientific knowlec in building management Protected.	Electronic lectures and practical application in Laboratories say	Questions, discussions and Examples
Fifth	five hou		First month exam		
Sixth	five hou	1- Computer 2- A modern mo device 3-Field observations a applications	Farming methods Distances preparation	Electronic lectures and practical application in Laboratories and say	Questions, discussions and Examples
seventh	five hou	1- Computer 2- A modern mo device 3-Field observations a applications	Methods prevention And the fight	Electronic lectures and practical application in Laboratories and say	Questions, discussions and Examples
eighth	five hou	1- Computer 2- A modern mo device 3-Field observations a applications	Cooling systems And heating	Electronic lectures and practical application in Laboratories and say	Questions, discussions and examples
Ninth	five hou	1- Computer	Breeding to resist	Electronic	Questions,

		2- A modern mobile device 3-Field observations and applications	Diseases	lectures and practical application in Laboratories and say	discussions and Examples
tenth	five hours		First month exam		
eleventh	five hours	1- Computer 2- A modern mobile device 3-Field observations and applications	Tomato production In a protected environment	Electronic lectures and practical application in Laboratories and say	Questions, discussions and Examples
twelveth	five hours	1- Computer 2- A modern mobile device 3-Field observations and applications	Cucumber production greenhouses	Electronic lectures and practical application in Laboratories and say	Questions, discussions and Examples
Thirteenth	five hours	1- Computer 2- A modern mobile device 3-Field observations and applications	Agricultural media And preparation methods	Electronic lectures and practical application in Laboratories and say	Questions, discussions and Examples
fourteenth	five hours		Protected hydroponics systems		

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

Recommended books and references (scientific journals, reports...)

Electronic References, Websites

Course Description Form

Course Name:
Landscape Engineering
Course Code:
AH1944
Semester / Year:
Autumn(First) / 2023-2024
Description Preparation Date:
25-01-2024
Available Attendance Forms:
Theoretical subject: It is given through the lecture program Practical subject: practical application Field visits Summer Training
Number of Credit Hours (Total) / Number of Units (Total)
30 hours / Theoretical 45 hours / practical Total 75 hours
Course administrator's name (mention all, if more than one name)
Assent. Prof. Dr. Zeyad Mohammed Abdulrazzaq zeyadmohammed@uoanbar.eud.iq
Course Objectives
<p>Knowledge of garden design concepts, its elements, and the principles and rules followed in the design</p> <p>Levels and systems of design according to international and local planning standards.</p> <p>Factors affecting design and the stages followed in garden design and the importance of each stage in detail.</p> <p>Landscaping systems and their types from private gardens to parks outside cities and green belts.</p> <p>Knowledge of international, Arab and local garden design standards</p> <p>Knowledge of the design programs used in developing design proposals and training on one of these programs</p>
Teaching and Learning Strategies
<p>Brainstorming</p> <p>Thinking strategy according to the student's ability</p> <p>Critical Thinking is a term that symbolizes the highest level of thinking that aims to pose an issue and then analyze it logically to reach the required solution.</p> <p>Strategies of presentation, coordination, training, discussion, talking, listening, writing, reading, reading, thinking and reflecting</p> <p>Cognitive strategies, which are concerned with analyzing the topics to be studied, including naming, explaining, detailing, and organizing.</p> <p>Metacognitive strategies, which are concerned with managing the learning process, such as</p>

selective attention to a specific topic or part of it, monitoring understanding, controlling comprehension, and conducting self-evaluation of what has been learned.

Social or affective strategies that are concerned with students' interaction with the teacher on the one hand and students' interaction with each other on the other hand, such as discussion and dialog with oneself.

These strategies can be achieved through:

Adopting the method of giving theoretical lectures using various modern means of explanation, through which the design systems used in the past and present are recognized in terms of the pros and cons of each design and how to overcome the negatives.

Following the method of practical application through which it aims to:

Introduce the student to how to start designing gardens according to the scientific stages.

The student knows the basic requirements in the garden design process

The student knows how to select and analyze design sites and develop appropriate design proposals for each proposed site, whether private or public gardens or green belts.

Recognize the design programs used to develop proposed designs.

Creating different designs for gardens after selecting different sites, and this is done on A3 paper and then applied on the ground or making miniature models of the proposed designs

Opening the door for discussion to exchange ideas with students, as well as applying the question and answer strategy.

Assigning students homework, writing reports and studies, and conducting field visits.

Conducting daily and monthly theoretical and practical tests.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5	An introduction to landscape design with an explanation of the concepts and terminology used within the discipline	Landscape Engineering	Explain, present the lecture and conduct the scientific application to frame the A3 canvas space while recognizing the components of the map , symbols and terminology of the garden.	Discuss, ask questions, give examples, and quiz students

Second	5	Levels of Open Space Design	Landscape Engineering	Explain, present the lecture and conduct the scientific application to recognize the different botanical and structural symbols and how to draw them on the drawing board.	Discuss, ask questions, give examples, and quiz students
Third	5	The stages of open space design, which are four stages	Landscape Engineering	Explain, present the lecture and conduct the scientific application of how to draw symbols and geometric shapes in the drawing board and apply them on the ground.	Discuss, ask questions, give examples, and quiz students
Fourth	5	Planning criteria for open spaces	Landscape Engineering	Explain, present the lecture and conduct the scientific application of drawing curved lines in the drawing board and applying them on the ground.	Discuss, ask questions, give examples, and quiz students
Fifth	5	Rules and principles of open space design	Landscape Engineering	Explain and present the lecture and conduct the scientific application of a typical home	Discuss, ask questions, give examples, and quiz students

				garden plan (learn to use the scale, directions and symbols).	
Sixth	5	Open Space Design Systems	Landscape Engineering	Explanation and presentation of the lecture and the scientific application of zooming in and out of maps in the drawing board	Discuss, ask questions, give examples, and quiz students
Seventh	5	The basics of using plants in open space design	Landscape Engineering	Explain and present the lecture and conduct the scientific application of a presentation of some gardens and parks (designed and implemented) from the explanation and presentation of the lecture and conduct the scientific application through movies, pictures and exhibitions of gardens.	Discuss, ask questions, give examples, and quiz students
Eighth	5	Formats for open spaces	Landscape Engineering	Explain, present the lecture and conduct the scientific application to select a model (a garden in	Discuss, ask questions, give examples, and quiz students

				the college) and plan it, draw it and put designs for it in the form of a 2D plan.	
Ninth	5	Types of open spaces - inside and outside cities (residential complexes, central islands and squares)	Landscape Engineering	Explain and present the lecture and conduct the scientific application to design a garden with certain dimensions and conditions by the students.	Discuss, ask questions, give examples, and quiz students
The tenth	5	Open spaces for urban streets (roadsides, in front of buildings, river banks..... etc.)	Landscape Engineering	Explain and present the lecture and conduct the scientific application to study a computer-aided design program and learn how to draw different two-dimensional designs (D2).	Discuss, ask questions, give examples, and quiz students
eleventh	5	Open spaces with special specifications (such as factories, laboratories, hospitals etc.)	Landscape Engineering	Explaining and presenting the lecture and conducting the scientific application to study one of the computer-aided design programs and learn how to draw different three-dimensional	Discuss, ask questions, give examples, and quiz students

				(3D) designs.	
Twelveth	5	Green belts (around public roads and around cities)	Landscape Engineering	Explain and present the lecture and conduct the scientific application of a visit to one of the parks and public gardens.	Discuss, ask questions, give examples, and quiz students
Thirteenth	5	Costcalculations (design, implementation, sustainability, maintenance) for open spaces	Landscape Engineering	Explain and present the lecture and conduct the scientific application to make miniature models of garden design by the students.	Discuss, ask questions, give examples, and quiz students
Fourteenth	5	Natural and physical components of open spaces	Landscape Engineering	Explanation and presentation of the lecture and the scientific application of making miniature models of garden design by the students.	Discuss, ask questions, give examples, and quiz students
Fifteenth	5	Natural and physical components of open spaces	Landscape Engineering	Explanation and presentation of the lecture and conducting the scientific application to hold a competition between the designs prepared by	Discuss, ask questions, give examples, and quiz students

				the students (Garden Design and Landscaping Exhibition).	
Course Evaluation					
Theoretical Tests					
Practical Tests					
Reports and studies					
Field visits					
Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Design and Landscaping, by Abu Dahab Mohammed and Tariq Abu Dahab. Garden Engineering and Design, by Talal Mahmoud Chalabi. Garden Design and Landscaping, by Tarek Mahmoud Al-Qai'i. Foundations of Design, translated by Serop Kendrian Book Garden Design, by Salvia Crowe Book RESIDENTIAL LANDSCAPE ARCHITECTURE, by Norman K.B. & James E.H. Book Time-Saver Standards for Landscape Architecture by Charles H. & Nicholas D. Book Foundations of Landscape Architecture: Integrating Form and Space Using the Language of Site Design, by Norman B. Research and Articles Internet		
Main references (sources)					
Recommended books and references (scientific journals, reports)					
Electronic References, Websites					

Course Description Form

Course Name:					
Farm management					
Course Code:					
AH1945					
Semester / Year:					
First semester, 2023- 2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
regularity (attendance)					
Number of Credit Hours (Total) / Number of Units (Total)					
75 Hour / 3.5 unit					
Course administrator's name (mention all, if more than one name)					
Name: Eyid Abbas Abdalltef					
Email: ag.eyid.abbas@uoanbar.edu.iq					
Course Objectives					
Course Objectives			<p>A - Providing the student with the concept of the basic principles of farm management and the economic principles related to them.</p> <p>B - Introducing the student to the most important economic activities and functions required by farm management.</p> <p>C - Introducing the most important types of farms and ways to manage them.</p> <p>D - Introducing the economic criteria and foundations that the farmer adopts in his production.</p> <p>E - Introducing the student to the economic controls to achieve the objectives of the farm.</p>		
Teaching and Learning Strategies					
Strategy		<p>A theoretical clarification of the vocabulary of the subject, using data to understand the scientific subject</p> <p>Using graphs in scientific material, student participation in lectures</p> <p>Conduct daily and monthly tests.</p>			
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge and understanding Skill for the subject	Elementary concepts management science.	theoretically Practical vocabulary Subject	Examination, reporting
2	5	Knowledge	An introduction to	theoretically	Examination,

		and understanding Skill for the subject	science of farm management.	Practical vocabulary Subject	reporting
3	5	Knowledge and understanding Skill for the subject	Scientific research to in farm management.	theoretically Practical vocabulary Subject	Examination, reporting
4	5	Knowledge and understanding Skill for the subject	production costs.	theoretically Practical vocabulary Subject	Examination, reporting
5	5	Knowledge and understanding Skill for the subject	The principle of assign the best level production.	theoretically Practical vocabulary Subject	Examination, reporting
6	5	Knowledge and understanding Skill for the subject	The principle of eq marginal returns.	theoretically Practical vocabulary Subject	Examination, reporting
7	5	Knowledge and understanding Skill for the subject	Exam.	theoretically Practical vocabulary Subject	Examination, reporting
8	5	Knowledge and understanding Skill for the subject	The principle opportunity costs.	theoretically Practical vocabulary Subject	Examination, reporting
9	5	Knowledge and understanding Skill for the subject	substitution principle.	theoretically Practical vocabulary Subject	Examination, reporting
10	5	Knowledge and understanding Skill for the subject	Measures of econo efficiency on the farm	theoretically Practical vocabulary Subject	Examination, reporting
11	5	Knowledge and understanding Skill for the subject	Depreciation and calculation methods.	theoretically Practical vocabulary Subject	Examination, reporting
12	5	Knowledge and understanding Skill for the subject	Factors that cause p managerial ability.	theoretically Practical vocabulary Subject	Examination, reporting
13	5	Knowledge and understanding Skill for the subject	Farm managem methods / substitut method.	theoretically Practical vocabulary Subject	Examination, reporting
14	5	Knowledge and understanding	Farm managem methods / dir	theoretically Practical	Examination, reporting

		Skill for the subject	comparison method.	vocabulary Subject	
15	5	Knowledge and understanding Skill for the subject	Exam.	theoretically Practical vocabulary Subject	Examination, reporting
Course Evaluation					
Daily exam(5), submission of reports(10), semester exam(35), final exam(50) (total score 100)					
Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)			Farm Management - Dr. Hashem Alwan Hussein University of Baghdad-1998.		
Recommended books and references (scientific journals, reports...)			*Lectures of Dr. Iskandar Hussein / College of Agriculture, University of Baghdad, published- 2015		
Electronic References, Websites					

Course Description Form

1. Course Name:		
Graduation project /1		
2. Course Code:		
AH1946		
3. Semester / Year:		
SPRING 2023–2024		
4. Description Preparation Date:		
25/01/2024		
5. Available Attendance Forms:		
IN CLASS		
6. Number of Credit Hours (Total) / Number of Units (Total):		
3 Hours / 1.5 Units		
7. Course administrator's name (mention all, if more than one name)		
Assistant Professor: Yasir Sayel Sekhi		
8. Course Objectives		
Course Objectives	<ol style="list-style-type: none"> 1. Qualifying students to prepare a graduation project plan. 2. Preparing students to start working according to the project plan 3. Qualifying students to prepare and write the results obtained from the project. 4. Qualifying students on how to prepare future plans for agricultural work. 	
9. Teaching and Learning Strategies		
Strategy	Teaching a theoretical part/classroom using electronic projectors.	Teaching the practical part through field visits / working in the department's laboratories / working in the department's facilities such as greenhouses and others.
10. Course Structure		

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Ability to prepare a project plan	Overview of project requirements.	Lecture	quiz
2	3	Encourage students to work in a team setting and act responsibly in personal and professional relationships in order to complete the project.	Students choose projects according to their specialization, whether it is fruits, vegetables, or other horticultural specialties	Lecture	quiz
3	3	Using multiple computer programs to prepare the project plan, which develops students' ability to deal with the project in all its stages	Qualifying students to prepare a business plan for the project	Lecture	quiz
4	3	Students apply what they have learned theoretically in the field of horticulture and landscaping practically in their graduation projects	Follow up, train and qualify students to prepare the business plan for the project.	Practical	quiz
5	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
6	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
7	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
8	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
9	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
10	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz

11	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
12	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
13	3	Students realize the importance of preparing a graduation project, working on it, solving its problems, and discussing the results	A meeting at the end of the graduation project preparation period to discuss and evaluate students' graduation projects	Lecture	quiz
14	3	Discussing the results to find out the negatives and positives in graduation projects	Discussion of graduation projects	Lecture	quiz
15	3	Discussing the results to find out the negatives and positives in graduation projects	Discussion of graduation projects	Lecture	quiz

11. Course Evaluation

The student discusses, defends and interprets his results in a scientific manner by using modern scientific sources.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Nothing
Main references (sources)	Books and scientific research specialized gastrison plants.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name:					
Production of grapes and small fruits					
Course Code:					
AH19410					
Semester / Year:					
Fourth stage / Spring semester 2023-2024					
Description Preparation Date:					
15-1-2024					
Available Attendance Forms:					
Attendance is according to the lecture schedule					
Number of Credit Hours (Total) / Number of Units (Total) :					
30 hours / 5 Units					
Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. Ahmed Fatkhan Zabar Email: ag.ahmed.fatkhan@uoanbar.edu.iq					
Course Objectives					
Course Objectives			1- Identifying the most important strategic grape varieties growing in the conditions of Iraq. 2- Identify the environmental conditions suitable for the growth of grapes. 3- Learn about the most important ways to grow grapes. 4- Learn about the most important methods of pruning and breeding grapes		
Teaching and Learning Strategies					
Strategy		1- Through lectures. 2- Direct meeting with students (conversations). 3- Scientific trips to different agricultural work sites. 4- Hosting specialized professors to increase the scientific level students.			
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	1- Computer 2- Modern mobile	Grapes and their economic importance and nutritional value	Electronic lectures and practical application in laboratories	Questions, discussions and examples

		device 3- Observatio and field application		and fields	
Second	2	1- Computer 2- Modern mobile device 3- Observatio and field application	Grape classification	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Third	2	1- Computer 2- Modern mobile device 3- Observatio and field application	Preparing a nursery for the propagation of grapes in various ways	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Fourth	2	1- Computer 2- Modern mobile device 3- Observatio and field application	Suitable environment for farming	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Fifth	2	First month exam			
Sixth	2	1- Computer 2- Modern mobile	The phenotypic structure of the grape tree	Electronic lectures and practical application in laboratories	Questions, discussions and examples

		device 3- Observatio and field application		and fields	
Seventh	2	1- Computer 2- Modern mobile device 3- Observatio and field application	Annual cycle of grape vine growth	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Eighth	2	1- Computer 2- Modern mobile device 3- Observatio and field application	Grape propagation	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Ninth	2	1- Computer 2- Modern mobile device 3- Observatio and field application	Breeding and pruning grapes	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Tenth	2	Second month exam			
Eleven	2	1- Computer 2- Modern mobile device	Study of the small fruits (strawberry, raspberry, blackberry, blueberry, currant, cosberry,	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples

		3- Observatio and field application	cranberry) in terms of their importance and the appropriate environment for them, their propagation, cultivation and service processes		
Twelfth	2	1- Computer 2- Modern mobile device 3- Observatio and field application	Methods of cultivation and production of strawberry, raspberry, blackberry, currant, blueberry, cranberry and service and harvest operations	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Thirteen	2	1- Computer 2- Modern mobile device 3- Observatio and field application	Growing grapes on the slopes in northern Iraq	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Fourteen	2	1- Computer 2- Modern mobile device 3- Observatio and field application	Some agricultural service operations for grapes	Electronic lectures and practical application in laboratories and fields	Questions, discussions and examples
Fifteen	2	Third month exam			
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	
Learning and Teaching Resources	
Required textbooks (curriculum books, if any)	Al-Saidi, I. H. M. 2000. Production of grapes 2000. College of Agriculture and Forestry - University of Mosul.
Main references (sources)	Al-Saidi, I. H. M. 1982. Cultivation and production of vineyards. College of Agriculture and Forestry - University of Mosul
Recommended books and references (scientific journals, reports...)	Hassan, J. A. and M. A. Salman. The production of grapes 1989. Jabbar Abbas and. College of Agricultural Engineering Sciences - University of Baghdad
Electronic References, Websites	https://www.tafesa.edu.au/courses/primary-industries-science/viticulture https://www.extension.iastate.edu/wine/viticulture

Course Description Form

Course Name:					
Palm Production					
Course Code:					
AH19411					
Semester / Year:					
Fourth stage / Spring Semester 2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
Theoretical and practical lectures according to the weekly schedule Field application for the practical aspect Field visits					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours /3.5 unit					
Course administrator's name (mention all, if more than one name)					
Name: Prof.Dr.Thamer Hameed Reja					
Email: ag.thamer.hameed@uoanbar.edu.iq					
Course Objectives					
Course Objectives			1.Introducing the importance of the date palm, improving its growth, and methods of propagation and processing of the fruits 2. Paying attention to the productivity, development and sustainability of palm groves. 3. Knowledge of the climatic environment and the appropriate thermal units for each type of palm tree 4. Knowing ways to distinguish between palm varieties through the morphological and structural characteristics of the date palm....		
Teaching and Learning Strategies					
Strategy		1. Preparing presentations that explain the basic concepts in the field of horticulture and providing detailed lectures on various topics. Use pictures and illustrations to better illustrate ideas and concepts. 2. Organize interactive sessions and workshops that allow participants to actively participate in the learning process. Practical models for growing vegetable plants, orchids or designing and landscaping gardens are presented, and participants are encouraged to participate and apply them in practice. 3. Organize field trips to local parks, gardens, nurseries and farms. Explain how to care and maintain it. 4. Using multimedia, mobile applications, and educational programs to provide information and interact with students.			
Course Structure					
Week	Hours	Required	Unit or subject	Learning method	Evaluation method

		Learning Outcomes	name		
First week	5	The student will be able to learn about the original habitat of the date palm and the origin of the date palm	History of the emergence of the date palm, with morphological description, and nutritional importance.	Botanical classification of the date palm, and important date palm genera from an economic standpoint.	Questions, discussions and examples
Second week		The student will be able to identify the thermal units of early, medium and late varieties and the suitability of an area for palm cultivation	Environmental factors suitable for the success of the date palm, thermal units, a visit to palm orchards	Morphological description of the vegetative parts of the date palm.	Questions, discussions and examples
Third week		Learn about the general description of the date palm and the genera of date palms	The morphological and structural characteristics of the date palm, the general description of the date palm seed, the structure of the seed	Visit the palm grove and learn about some of the cultivated varieties.	Questions, discussions and examples
Fourth week		Learn about the anatomical structure of leaves and how fronds and their parts grow and develop	Formation of leaves and fronds, anatomical structure of the leaf, anatomical structure of the head of the palm, and development of fronds	The anatomical structure of the date palm head and the development of the fronds, stem, roots and branches that occur in the date palm	Questions, discussions and examples

Fifth week	5	Identify the types of flower inflorescences, their differentiation, root structure, and the nature of its growth	Differentiation of inflorescences, roots, root growth, anatomical structure of the date palm fruit	The anatomical structure of the date palm head and the development of the fronds, stem, roots and branches that occur in the date palm	Questions, discussions and examples
Sixth week		Identify the differentiation of floral inflorescences, roots, root growth, and the anatomical structure of the date palm fruit	the differentiation of floral inflorescences, roots, root growth, and the anatomical structure of the date palm fruit	Distinctive characteristics of the nature of root formation in the date palm, the anatomical structure of the roots of the date palm	Questions, discussions and examples
Seventh week		Learn about the types of insemination and how to perform the insemination and fertilization process	Flowering, pollination, fertilization and establishment of the date palm, the formation and appearance of the inflorescence, the timing of pollination, the effect of the source of the pollen,	Flowering, pollination, fertilization and establishment of the date palm, the formation and appearance	Questions, discussions and examples
Eighth week		Method of propagation, how to distinguish between seed palms and cuttings, reasons for failure, and how to plant and succeed the cuttings	Methods of palm reproduction, seeds, vegetative method, cuttings separation, morphological description of the inflorescence and its parts in the date palm.	The process of planting offshoots and rooting shoots	Questions, discussions and examples

<p>Ninth week</p>		<p>Method of propagation, how to distinguish between seed palms and cuttings, reasons for failure, and how to plant and succeed the offshoots</p>	<p>Methods of palm reproduction, seeds, vegetative method, offshoots separation, morphological description of the inflorescence and its parts in the date palm</p>	<p>Morphological description of the inflorescence and its parts in the date palm, structure and characteristics of female and male flowers, characteristics of pollen and male flowers, characteristics of pollen and female flowers, emergence and development of flower buds.</p>	<p>Questions, discussions and examples</p>
<p>Tenth week</p>		<p>Learn about irrigation techniques, adding fertilizers, and application times</p>	<p>Service operations, irrigation, fertilization, the effect of temperature and humidity, breeding and pruning, methods of thinning, concentration and thinning.</p>	<p>Morphological description of the inflorescence and its parts in the date palm, structure and characteristics of female and male flowers, characteristics of pollen and male flowers, characteristics of pollen and female flowers, emergence and development of flower buds</p>	<p>Questions, discussions and examples</p>
<p>Eleventh week</p>		<p>(Second month exam) Service operations, irrigation, fertilization, the effect of temperature and humidity, breeding and pruning, methods of thinning,</p>	<p>(Second month exam) Service operation: irrigation, fertilization, the effect of temperature and humidity, breeding and pruning, methods of thinning, concentration and thinning.</p>	<p>Pollen grains, composition and recipes of date palm pollen, the effect of temperature and humidity on pollen germination, examining the vitality and germination of pollen grains.</p>	<p>Questions, discussions and examples</p>

		concentration and thinning.			
Twelveth week		The possibility of identifying and diagnosing date palm infestations, both insect and pathogenic	Palm diseases, bacterial diseases, non-bacterial diseases, insects that infect the fruits, morphological description of the fruiting stem.	Conducting various tree service operations.	Questions, discussions and examples
Thirteenth week		The possibility of identifying and diagnosing date palm infestations, both insect and pathogenic	Palm diseases, bacterial diseases, non-bacterial diseases, insects that infect the fruits, morphological description of the fruiting stalk	Conducting various tree service operations.	Questions, discussions and examples
Fourteenth week		The possibility of identifying and diagnosing date palm infestations, both insect and pathogenic	Palm diseases, bacterial diseases, non-bacterial diseases, insects that infect the fruits, morphological description of the fruiting stalk	Morphological description of the fruit stem and fruit, anatomical structure, and chemical composition of the fruits.	Questions, discussions and examples
Fifteenth week		Possibility of identifying commercial date palm cultivars as much as possible	cultivars of dates, distinguishing the varieties, and distinguishing characteristics of the cultivars.	Botanical classification of the date palm, and important date palm genera from an economic standpoint.	Questions, discussions and examples

Course Evaluation

- 1- Monthly written exams.
- 2- Direct oral exams and field work in the college's fields.
- 3- Through classroom activities and tests.

Learning and Teaching Resources

Required textbooks (curricu 1.Al-Bakr, Abdul-Jabbar. 1972. The date palm, its past, its present,

books, if any)	and what is new in its agriculture, industry, and trade. Al-Ani Press. Baghdad - Iraq.
Main references (sources)	<ul style="list-style-type: none"> - Guide to Nutrient Deficiency on Date Palms (Prof. Dr. Abdel Baset Odeh Ibrahim - Date -Palm Specialist Dr. Abdel Aziz Nayan - Regional Coordinator Arshengatian - Activities Coordinator) - Organic palm cultivation (Prof. Dr. Khalid bin Nasser Al-Rudaiman)
Recommended books and references (scientific journals, reports...)	<ul style="list-style-type: none"> - Palm cultivation and date quality (Prof. Abdel Baset Odeh) - Ghaleb Hossam Ali. 1980. Practical palm cultivation.. Matar, Abdul Amir Mahdi. 1991. Palm cultivation and production.
Electronic References, Websites	

Course Description Form

Course Name:					
Biotechnology					
Course Code:					
AH19412					
Semester / Year:					
Second Semester, 2023-2024					
Description Preparation Date:					
25 / 1/ 2024					
Available Attendance Forms:					
Theoretical material is given 65%. Practical material is given 35%					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / Units 3.5					
Course administrator's name (mention all, if more than one name)					
Name: Dr. Idrees Hussein Mola Salih Email: jdresshussein@uoanbar.edu.iq					
Course Objectives					
Course Objectives: - The student gets to know biotechnology and its importance in terms of application. -Knowing the theoretical principles and basics related to the scientific material, the genetic material (DNA). - Complete understanding of how DNA and RNA replicate. - The student will know how proteins are formed - The student will learn about the methods of gene transfer into cells.			..... ..... .....	
Teaching and Learning Strategies					
Strategy: 1- Follow the lecture method and use modern presentation methods. 2- Conduct laboratory experiments. 3- Direct dialogue with students by asking them questions 4- Homework assignments (writing scientific reports). 5- Learning through applied laboratory work					
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	1- Computer 2-Modern mobile device 3-Observations and field applications	Definition biotechnology, concepts, historical overview and its applications	Electronic and application laboratories fields	lectures practical questions, discussions and examples

			in various fields			
Second	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	The nature of genetic material the nucleus, chloroplast, and mitochondria	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Third	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Cutting and joini DNA by cutting a ligating enzymes	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Fourth	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Cloning vectors (plasmids cosmids, phages)	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Fifth	2	First month exam				
Sixth	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Cloning strategie in plants and hybrid DNA formation	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Seventh	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Genetic transformation plants mediated Agrobaterium bacterium tumefaciens	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Eighth	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Genetic transformation i plants by direct gene transfer	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Ninth	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	DNA multiplex chain reaction (PCR) and its applications	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Tenth	2	Second month exam				
Eleven	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Using DNA indicators to det mutant and genetically modified plants	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples
Twelfth	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Preserving genet resources and freezing germ plasma	Electronic and application laboratories fields	lectu pract	Questions, discussions and examples

Thirteen	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Genetic engineering, its importance and applications in th production of genetically modified plants (GMPs)	Electronic lectu and pract application laboratories a fields	Questions, discussions and examples
Fourteenth	2	1- Computer 2-Modern mobile device 3-Observations and fi applications	Summary biotechnology lectures	Electronic lectu and pract application laboratories a fields	Questions, discussions and examples
Fifteen	2	Third month exam			
Course Evaluation					
1- Monthly exams. 2- Rapid exams . 3- Evaluation through classroom activity. 4- By preparing scientific reports and taking advantage of information networks. 5- Final exams.					
Learning and Teaching Resources					
Required textbooks (curricular books, if any)			1- Al-Bakri, Ghaleb Hamza.1991. Principles of genetic engineering. Dar Al-Hekma Press. Albasrah university Iraq. 2- Muhammad, Abdul Muttalib Sayyid and Omar, Mubasher Saleh. 1990. The main concepts in the cultivation of plant cells, tissues and organs. Director of Dar Al-Kutub for Printing and Publishing, University Mosul. Iraq .		
Main references (sources)			Abdul Kader, A., Abou Sleymane, G., Khatib. F., Saker and Baum, M. 2011. Laboratory manual for the train course on: Detection of Genetically Modified Organisms and Biosafety for Food and Agriculture		
Recommended books and references (scientific journals, reports...)			Moneim, Fawza. 2005. Biosafety in clinical laboratories. Journal of laboratory diagnosis. Volume 3. Issue 8, Faculty of Pharmacy, Damascus University. Syria		
Electronic References, Websites					

Course Description Form

Course Name:					
Harvesting and storing horticulture crops					
Course Code:					
AH19413					
Semester / Year:					
Semester / 4th stage/ 2023-2024					
Description Preparation Date:					
25/ 1/ 2024					
Available Attendance Forms:					
Presence in the college according to lectur's secdule					
Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / Units 3.5					
Course administrator's name (mention all, if more than one name)					
Name: Ass.prof.Dr. Ali Ammar Ismaeel					
Email: ali.ammar@uoanbar.edu.iq					
Course Objectives					
Identifying	the most important strategic of storage of horticultural crops in the conditions of Iraq				
Studying	the importance of lost of weight during storage				
studying	the fruit ripening and relationship with plant hormones				
studying	the artificial ripening of fruits before and after harvest				
studying	the respiration of fruits and ethylene production				
studying	the chemical ingredient and Nutritional value of fruits and relationship with storage period				
studying	the harvesting , sorting, grading , packaging and storage ways of horticultural crops				
studying	the diseases that affect the horticultural crops during cold storage				
studying	the technique of flower storage				
Teaching and Learning Strategies					
Strategy:					
1- Follow the lecture method and use modern presentation methods.					
2- Conduct laboratory experiments.					
3- Direct dialogue with students by asking them questions.					
4- Homework assignments (writing scientific reports).					
5- Learning through applied laboratory work					
6- visiting the cold stores					
7- student do differential experiments about storage of varies vegetables and fruits					
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluati on method

First	5	<p>1- Computer 2-Modern mobile device 3-Observations and field applications</p>	<p>Theory The economic importance of storage and the amount of loss resulting from it. Practical Anatomical and morphological characteristics of the types of fruits</p>	<p>Electronic lectures and practical application in laboratories and fields</p>	<p>Questions, discussions, examples, quizzes and exams</p>
Second	5	<p>1- Computer 2-Modern mobile device 3-Observations and field applications</p>	<p>Theory Growth and ripening of fruits and their relationship to plant hormones Practical Studying the natural and chemical properties of fruits</p>	<p>Electronic lectures and practical application in laboratories and fields</p>	<p>Questions, discussions, examples, quizzes and exams</p>
Third	5	<p>1- Computer 2-Modern mobile device 3-Observations and field applications</p>	<p>Theory Physiological and chemical changes that occur to fruits upon ripening and storage Practical Ripening and maturity indicators</p>	<p>Electronic lectures and practical application in laboratories and fields</p>	<p>Questions, discussions, examples, quizzes and exams</p>

Fourth	5	1- Computer 2-Modern mobile device 3-Observations and field applications	Theory Criteria of completed growth, ripening and determining the date of harvest Practical Study the changes in hardness and pectins of fruits	Electronic lectures and practical application in laboratories and fields	Questions, discussions examples, quizzes and exams
Fifth	5	1- Computer 2-Modern mobile device 3-Observations and field applications	Theory Respiratory mechanics of fruits during growth and ripening Practical Studying the changes in the organic acid content and acidity of fruits	Electronic lectures and practical application in laboratories and fields	Questions, discussions examples, quizzes and exams
Sixth	5	First month exam			
Seventh	5	1- Computer 2-Modern mobile device 3-Observations and field applications	Theory Ripening fruits artificially before and after harvest Practical Study of the change in the vitamin C content of fruits	Electronic lectures and practical application in laboratories and fields	Questions, discussions examples, quizzes and exams

Eighth	5	1- Computer 2-Modern mobile device 3-Observations and field applications	Theory Cold damage and freezing damage to horticultural crops Practical Study of changes in the plant pigment chlorophyll and carotene	Electronic lectures and practical application in laboratories and fields	Question s, discussio ns example s, quizzes and exams
Ninth	5	1- Computer 2-Modern mobile device 3-Observations and field applications	Theory Methods of harvesting, sorting, grading, packing, and additional treatments for the fruits Practical Study of the change in fruit respiration during and after storage	Electronic lectures and practical application in laboratories and fields	Question s, discussio ns example s, quizzes and exams
Tenth	5	1- Computer 2-Modern mobile device 3-Observations and field applications	Theory Pre-cooling methods before shipping and storage Practical Methods to estimate ethylene production in fruits and study the physiological effects of ethylene	Electronic lectures and practical application in laboratories and fields	Question s, discussio ns example s, quizzes and exams

Eleven	5	<p>1- Computer 2-Modern mobile device 3-Observations and field applications</p>	<p>Theory Storage methods (refrigerated storage, tree storage, and ventilated rooms) Practical Artificial ripening of some types of fruits</p>	<p>Electronic lectures and practical application in laboratories and fields</p>	<p>Questions, discussions, examples, quizzes and exams</p>
Twelfth	5	Second month exam			
Thirteen	5	<p>1- Computer 2-Modern mobile device 3-Observations and field applications</p>	<p>Theory The use of atomic radiation to reduce damage of horticultural crops during storage Practical Microbial damage to horticultural crops after harvest</p>	<p>Electronic lectures and practical application in laboratories and fields</p>	<p>Questions, discussions, examples, quizzes and exams</p>
Fourteenth	5	<p>1- Computer 2-Modern mobile device 3-Observations and field applications</p>	<p>Theory Storage in a control atmosphere and storage in low pressure atmosphere Practical Physiological damages that occur to fruits during storage</p>	<p>Electronic lectures and practical application in laboratories and fields</p>	<p>Questions, discussions, examples, quizzes and exams</p>

Fifteen	5	1- Computer 2-Modern mobile device 3-Observations and field applications	Theory General principles for determining quality degrees, their importance, and factors of deterioration of the qualitative and nutritional value of horticultural crops during storage Practical Reviewing students' experiences about storing some types of fruits and discussing the reports submitted in this regard	Electronic lectures and practical application in laboratories and fields	Questions, discussions, examples, quizzes and exams
		Course Evaluation			
1- Monthly exams. 2- Rapid exams . 3- Evaluation through classroom activity. 4- By preparing scientific reports and taking advantage of information networks. 5- Final exams.					
Learning and Teaching Resources					
Required textbooks (curricular books, if any)			عناية و خزن الثمار / عبد الاله مخلف و عدنان ناصر مطلوب / 1982		
Main references (sources)					

Recommended books and references (scientific journals, reports...)	Post harvest biology and technology بحوث الحاصلات البستانية بعد الحصاد / عبد الاله مخلف العاني / الجزء الأول والثاني
Electronic References, Websites	

Course Description Form

Course Name:					
Soil fertility and fertilizers					
Course Code:					
AH19414					
Semester / Year:					
Second Semester, 2023-2024					
Description Preparation Date:					
25/1/2024					
Available Attendance Forms:					
Attendance (theoretical + practical)					
Number of Credit Hours (Total) / Number of Units (Total)					
65 hours / 3.5 units					
Course administrator's name (mention all, if more than one name)					
Name: Bassam Ramadhnan Sarheed					
Email: ag.bassam.ramadhn@uoanbar.edu.iq					
Course Objectives					
<p>1. Understanding the principles of soil fertility and know the extent of the plant's need for various nutrients and relationship to plant productivity.</p> <p>2. The extent of the importance of plant nutrients, forms in which they are found, and the factors affect their readiness for the plant.</p> <p>3. Assessing the fertility state of the soil and identifying symptoms of deficiency of various nutrients that appear the plant.</p>			<p>4. Knowing how much, when and how to add these nutrients and in what form (chemical or organic).</p> <p>5. Calculating the economic feasibility and cost of added fertilizers, along with raising awareness about reducing the amount of these fertilizers added without affecting the yield.</p>		
Teaching and Learning Strategies					
Strategy		<p>1. Traditional means of explanation and clarification.</p> <p>2. Electronic means of explanation and clarification.</p> <p>3. Field experiments.</p> <p>4. Field visits to agricultural fields.</p> <p>5. Adopting student groups to conduct separate field experiments.</p> <p>6. Use of various laboratory devices and equipment.</p> <p>7. Displaying illustrative pictures of the various manifestations of symptoms of element deficiency on plants.</p>			
Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5	Definition of growth factors affecting it and methods used for fertility evaluation.	Soil fertility and fertilizers	A lecture with explanation and clarification	The exam
the second		The foundations of soil and plant relationships	Soil fertility and fertilizers	A lecture with explanation	The exam

		soil fertility, biological readiness + methods used for fertility evaluation		and clarification	
the third		The foundations of soil and plant relationships, soil fertility, biological readiness + methods used for fertility evaluation	Soil fertility fertilizers	A lecture with explanation and clarification	The exam
the fourth		The necessary elements for plant growth and their classification + foundations that rely on them: implementing field experiment potting experiment evaluate soil fertility	Soil fertility fertilizers	A lecture with explanation and clarification	The exam
Fifth		Nitrogen + Estimating ready quantities of number of macro and micro nutrients	Soil fertility fertilizers	A lecture with explanation and clarification	The exam
VI	First month exam - theoretical and practical				
Seventh		Phosphorus Estimating the ready quantities of a number of macro and micro nutrients	Soil fertility fertilizers	A lecture with explanation and clarification	The exam
VIII		Potassium Estimating the ready quantities of a number of macro and micro nutrients	Soil fertility fertilizers	A lecture with explanation and clarification	The exam
Ninth		Calcium, magnesium, sulfur + estimating ready quantities of number of macro- and micro-nutrients,	Soil fertility fertilizers	A lecture with explanation and clarification	The exam
The tenth		Micronutrients	Soil fertility fertilizers	A lecture with explanation and clarification	The exam
eleventh		Beneficial nutrients	Soil fertility fertilizers	A lecture with explanation and clarification	The exam
twelveth		Organic matter in the soil and its importance for fertility + Estimation	Soil fertility fertilizers	A lecture with explanation and	The exam

		the organic matter in soil		clarification	
Thirteenth	Second month exam - theoretical and practical				
fourteenth		Soil fertility evaluation methods for estimating fertility status	Soil fertility and fertilizers	A lecture with explanation and clarification	The exam
Fifteenth		Soil fertility evaluation methods for estimating fertility status	Soil fertility and fertilizers	A lecture with explanation and clarification	The exam
Course Evaluation					
1- Rapid daily tests. 2- Theoretical tests. 3- Practical tests. 4- Research and reports.					
Learning and Teaching Resources					
Required textbooks (curricular books, if any)			1-Al-Naimi, Saadallah. 1999 Fertilizers and soil fertility. Ministry of Higher Education and Scientific Research, University of Mosul. -2 Awad, Kazem Mashhout 1999 Fertilization and Soil Fertility, Ministry of Higher Education and Scientific Research, University of Basra. 3 - Havlin, J.L., Tisdale, S.L., Nelson, W. and Beaton, J.D. 2005, Soil Fertility and Fertilizers, 5th edition. USA .		
Main references (sources)			1-Awad, Kazem Mashhout 1999 Fertilization and Soil Fertility, Ministry of Higher Education and Scientific Research, University of Basra. 2 - Page, A.L. et. Al. 1982, Methods of analysis, part 2 2nd Chemical and microbiological properties. Madison		
Recommended books and references (scientific journals, reports...)			1- Al-Ani, Abdullah Najm, 1980, Principles of Soil Science, Ministry of Higher education and scientific research 2- White, R.E, 1979, Introduction to principles and practices of soil science BlackWell scientific publication 3- Page, A.L. et. Al. 1982, Methods of analysis, part 2 2nd Chemical and microbiological properties. Madison Wisconsin, USA		
Electronic References, Websites			Local, regional and international scientific books and journals concerned with fertility, especially within scientific and virtual libraries.		

Course Description Form

1. Course Name:					
English Language/4					
2. Course Code:					
AH19415					
3. Semester / Year:					
SECOND / 2023-2024					
4. Description Preparation Date:					
25/1/2024					
5. Available Attendance Forms:					
DAYLY					
6. Number of Credit Hours (Total) /					
Number of Units (Total) 1 HOUER-1 UNIT					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.ANMAR NAZAR HASAN Email:ag.anmar.nizar@uoanbar.edu.iq					
8. Course Objectives English Language/4					
Course Objectives					
9. Teaching and Learning Strategies					
<p>a. Developing teaching programs in coordination with higher department</p> <p>b. Develop teaching curricula similar to the work environment.</p> <p>c. Sending students to departments and directorates for the purpose of conducting summer application.</p> <p>d. Assigning students to conduct research and reports.</p> <p>e. Assigning students to go to the library and collect resources on the topic</p> <p>f. Implementing practical lessons in laboratories, each according to its specialty</p>					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoret 1 hour	English Language/4	No place like home	Theoretical 1 hour	Daily and quarterly exam activity
2	Theoret 1 hour	English Language/4	Been there	Theoretical 1 hour	Daily and quarterly exam activity
3	Theoret 1 hour	English Language/4	What a story	Theoretical 1 hour	Daily and quarterly exam

					activity
4	Theoretic 1 hour	English Language/4	No think but t truth	Theoretical 1 hour	Daily and quarterly exam activity
5	Theoretic 1 hour	English Language/4	Any eye to the future	Theoretical 1 hour	Daily and quarterly exam activity
6	Theoretic 1 hour	English Language/4	Making it big	Theoretical 1 hour	Daily and quarterly exam activity
7	Theoretic 1 hour	English Language/4	Getting on together	Theoretical 1 hour	Daily and quarterly exam activity
8	Theoretic 1 hour	English Language/4	Going to extremes	Theoretical 1 hour	Daily and quarterly exam activity
9	Theoretic 1 hour	English Language/4	Things aint what they use the be	Theoretical 1 hour	Daily and quarterly exam activity
10	Theoretic 1 hour	English Language/4	Risking life an limb	Theoretical 1 hour	Daily and quarterly exam activity
11	Theoretic 1 hour	English Language/4	In your dream	Theoretical 1 hour	Daily and quarterly exam activity
12	Theoretic 1 hour	English Language/4	It's never to la	Theoretical 1 hour	Daily and quarterly exam activity

11. Course Evaluation

- Daily and monthly tests through questions on the subject of the subject
- Grades on students' participation in research and scientific reports
- Discussing research and reports, presenting them, and giving them a grade
- Conducting tests during the application period and asking questions to students to determine the extent of their understanding of the subject
- Conduct a discussion of reports at the end of the semester to find out students' choices in courses
- Writing reports after completing the application period to determine the extent to which students were able to diagnose problems and how to find solutions

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	NEW HEADWAY plus
Main references (sources)	NEW HEADWAY plus
Recommended books and references (scientific journals, reports...)	NEW HEADWAY plus
Electronic References, Websites	You Tub Chanel

Course Description Form

1. Course Name:

Graduation project 2

2. Course Code:

AH19415

3. Semester / Year:

SPRING 2023-2024

4. Description Preparation Date:

25/01/2024

5. Available Attendance Forms:

IN CLASS

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

3 Hours / 1.5 Units

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

Assistant Professor :Yasir Sayel Sekhi

8. Course Objectives

Course Objectives

1. Qualifying students to prepare a graduation project plan.
2. Preparing students to start working according to project plan

	<p>3. Qualifying students to prepare and write the report obtained from the project.</p> <p>4. Qualifying students on how to prepare future plans for agricultural work.</p>
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9. Teaching and Learning Strategies

Strategy	Teaching a theoretical part/classroom using electronic projectors.	Teaching the practical part through field visits / working in the department's laboratories / working in department's facilities such as greenhouses and other
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10. Course Structure

11. Course Evaluation

The student discusses, defends and interprets his results in a scientific manner by using modern scientific sources.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Nothing
Main references (sources)	Books and scientific research specialized in gastronomic plants.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:		
Graduation project/2		
2. Course Code:		
AH19416		
3. Semester / Year:		
SPRING 2023–2024		
4. Description Preparation Date:		
25/01/2024		
5. Available Attendance Forms:		
IN CLASS		
6. Number of Credit Hours (Total) / Number of Units (Total):		
3 Hours / 1.5 Units		
7. Course administrator's name (mention all, if more than one name)		
Assistant Professor: Yasir Sayel Sekhi		
8. Course Objectives		
Course Objectives	<ol style="list-style-type: none"> 1. Qualifying students to prepare a graduation project plan. 2. Preparing students to start working according to the project plan 3. Qualifying students to prepare and write the results obtained from the project. 4. Qualifying students on how to prepare future plans for agricultural work. 	
9. Teaching and Learning Strategies		
Strategy	Teaching a theoretical part/classroom using electronic projectors.	Teaching the practical part through field visits / working in the department's laboratories / working in the department's facilities such as greenhouses and others.
10. Course Structure		

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Ability to prepare a project plan	Overview of project requirements.	Lecture	quiz
2	3	Encourage students to work in a team setting and act responsibly in personal and professional relationships in order to complete the project.	Students choose projects according to their specialization, whether it is fruits, vegetables, or other horticultural specialties	Lecture	quiz
3	3	Using multiple computer programs to prepare the project plan, which develops students' ability to deal with the project in all its stages	Qualifying students to prepare a business plan for the project	Lecture	quiz
4	3	Students apply what they have learned theoretically in the field of horticulture and landscaping practically in their graduation projects	Follow up, train and qualify students to prepare the business plan for the project.	Practical	quiz
5	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
6	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
7	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
8	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
9	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
10	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz

11	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
12	3	Providing the student with the field experiences necessary for practical practice	Follow up and guide students during the project work period and provide them with the necessary assistance	Practical	quiz
13	3	Students realize the importance of preparing a graduation project, working on it, solving its problems, and discussing the results	A meeting at the end of the graduation project preparation period to discuss and evaluate students' graduation projects	Lecture	quiz
14	3	Discussing the results to find out the negatives and positives in graduation projects	Discussion of graduation projects	Lecture	quiz
15	3	Discussing the results to find out the negatives and positives in graduation projects	Discussion of graduation projects	Lecture	quiz

11. Course Evaluation

The student discusses, defends and interprets his results in a scientific manner by using modern scientific sources.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	nothing
Main references (sources)	Books and scientific research specialized gastrison plants.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Seminars	
2. Course Code:	
AH19417	
3. Semester / Year:	
SPRING 2023–2024	
4. Description Preparation Date:	
25/01/2024	
5. Available Attendance Forms:	
IN CLASS	
6. Number of Credit Hours (Total) / Number of Units (Total):	
15 Hours / 1 Units	
7. Course administrator's name (mention all, if more than one name)	
Assistant Professor: Yasir Sayel Sekhi	
8. Course Objectives	
<p>Course Objectives</p> <ol style="list-style-type: none"> 1. Expanding knowledge and developing skills in the field of academic specialization. 2. Enabling students to acquire more in–depth and detailed knowledge about the specific topic. 3. Focus on specialized topics in the field chosen by the student. 4. Giving students an opportunity to search for information in research through scientific websites and translate it correctly. 	
9. Teaching and Learning Strategies	
Strategy	Teaching a theoretical part/classroom using electronic projectors.
10. Course Structure	
11. Course Evaluation	
The student discusses the topic he presented in a scientific manner and discusses all its aspects.	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Nothing
Main references (sources)	Relying on scientific journals and published research horticultural specialties
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	