

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

## 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:**

<u>Academic Program Description:</u> 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.

<u>Course Description</u>: 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.

**<u>Program Vision:</u>** 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.

<u>Curriculum Structure:</u> 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.

<u>Teaching and learning strategies:</u> 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 extracurricular activities to achieve the learning outcomes of the program.

# **Academic Program Description Form**

University Name:							
Faculty/Institute:							
Scientific Department:							
Academic or Professional Program	Name:						
Final Certificate Name:  Academic System:							
File Completion Date:							
Signature:	Signature:						
Head of Department Name:	Scientific Associate Name:						
Date:	Date:						
The file is checked by:							
Department of Quality Assurance as	nd University Performance						
Director of the Quality Assurance as	nd University Performance Department:						
Date:							
Signature:							

Approval of the Dean

#### See the program

.1

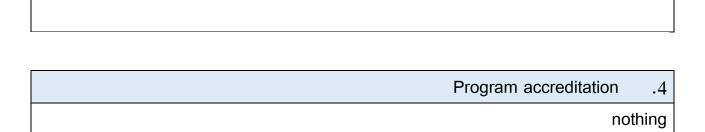
graduates in the field of agricultural Preparing Agriculture college Seeking sciences to work in government departments and benefit from specialization in the practical and applied field

#### Program message .2

quality and modern educational -The department's mission is to implement high systems to prepare a generation of agricultural engineers armed with scientific skills and researchers capable of solving all problems related to agricultural production, as as carrying out scientific studies and research that would raise the scientific and well applied level of cadres specialized in the field of plant protection

#### Program Goals .3

- Graduating agricultural engineers with scientific and practical experience .1 .capable of working in the private and public sectors
- Disseminating knowledge among the classes of society about the importance .2 freedom from plant of the safety of agricultural products, such as their .diseases, chemical pesticide residues, etc
  - Conducting advanced scientific research for the purpose of developing the agricultural sector, solving its problems, and combating pests, especially ative solutions to the use of research that contributes to finding altern environmentally friendly chemical pesticides
- Developing agricultural awareness for farmers and agricultural workers and .4 .disseminating modern information to obtain the best agricultural products
  - nment agencies, such as extension and Cooperating with various gover .5 research centers and agricultural directorates, in order to exchange experiences and knowledge and learn about the latest developments in the .field of agriculture and plant protection



#### Other external influences .5

Laboratories, the field, the library, the Internet, agricultural and industrial institutions, agricultural projects, and summer training

Note that the vision, mission and goals of the department and college are announced in multiple places within the department building and published on its website within College Agriculture website following :the of at the link https://agriculture.uokerbala.edu.ig/wp/%d8%b1%d8%a4%d9%8a%d8%a9-%d9%88%d8%a7%d9%87%d8%af%d8% a7%d9%81-%d9%82%d8%b3%d9%85-%d8%a7%d9%84%d8%a8%d8%b3%d8%aa%d9%86%d8%a9-%d9 %88%d9%87%d9%86%d8%af%d8%b3%d8%a9-%d8%a7%d9%84%d8%ad%d8%af

: the Plant Protection Department Structure of. 6								
comments	percentage	Study unit	Number of	Section				
			courses	structure				
	%10.76	19	11	Enterprise				
				requirements				
	%39.94	70.5	22	College				
				requirements				
	%47.59	84	26	Department				
				requirements				
				summer				
				training				
				Other				

Program description .7								
Credi	t hours	Course Name	Course Code	Year/level				
practical	theoretical							
3	2	Principles of soil science	SOSC109	The first				
_	2	Principles of agricultural economics	POSE102					
3	2	Principles of insects 1	GEIN110					
0	2	mathematics	MATH103					
0	2	English language 1	U0P114					

0	2	Democracy and human rights	UOP107	
3	0	applications 1	UOP106	
3	2	organic chemistry	ORCH104	
3	2	Principles of insects	GEIN111	
3	2	General animal	GZOE105	
3	2	General plant	BOTA101	
0	2	Crimes of the defunct Baath Party	BAAC102	
3	2	Principles of horticulture	HLGA205	
3	0	Computer applications 2	UOP112	
3	2	Principles of microbiology	FOMT212	the second
3	2	Plant classification	BOTA201	
3	2	Principles of field crops	FCPT213	
0	2	Agricultural guidance	AEPM211	
3	2	Plant physiology	PLP210	
3	2	Principles of animal production	APTE105	
3	2	Principles of statistics	PROS200	
3	0	Computer applications 3	UOB209	
3	2	Medical and veterinary insects	MVIC214	
3	2	Agricultural control machines and equipment	EAME102	
3	2	Structure and classification of insects	INTA215	
3	2	Plant nutrition	PLNU202	
0	3	Computer applications 4	UOB216	

3	2	Analytical chemistry	ANLC200	
0	2	Arabic	UOP213	
0	2	English language 2	U0P214	
0	2	Crimes of the defunct Baath Party	UO2402BPC	
3	2	Biochemistry	BIOC306	Third
3	2	Genetics	GETE304	
3	2	Insect physiology	INPH303	
3	2	Caecilians	CDCT305	
3	2	Fungi1	MYCO301	
3	2	Agricultural biotechnology	TAET210	
0	2	English language 3	UOB312	
3	2	Plant breeding	PLTB310	
3	2	Beekeeping	APTE309	
3	2	The bush and ways to combat it	WCET311	
3	2	Plant diseases	PDTE307	
3	2	Fungi 2	MYCO302	
3	2	Ecology	ECOO333	
3	2	Design and analysis of agricultural experiments	SAED310	
3	2	Field crop diseases	CDCT403	Fourth
3	2	Agricultural pesticides	PAEP405	
3	2	Insect ecology	IETE413	
3	2	Warehouse pests	SPCT402	
3	2	Biological resistance to pests	BCTE406	

3	2	Vegetable diseases and protected agriculture	FVDC408	
0	2	Study groups	SEMI414	
0	2	Graduation research project	AEPR407	
3	2	Fruit diseases	FVDC408	
0	2	Integrated pest management	IPMA409	
3	2	Field crop insects	CICT401	
3	2	Plant viruses	PLVI401	
3	2	Agricultural dream	AGAC411	
3	2	Orchard insects	OPCT412	
0	2	Graduation research project	AEPR415	
0	2	English language 4	UOM404	

Expected learning outcomes for the Field Crops Department						
1- education						
	qualified graduates Preparing Are able to work in various fields of agricultural theoretical and possess production concepts and practical skills through familiarity with the topics of crop production and improvement, weed control and the use of Modern technologies in developing production and providing graduates with social communication skills gAnd preparin					

	scientific competencies Able to keep pace with scientific and technological developments in the field of field crop science. researchers And qualifying Able to conduct distinguished scientific research.
2- Research	
	Scientific solutions Ejaad -2 to agricultural production problems. new Innovating agricultural technologies Contributes to enhancing food security. Providing scientific knowledge Contributes to preserving the environment.
	3- the service
	agricultural Understanding the -3 society The importance of field crop science . qualified farmers Preparing To use the best agricultural practices. Achieving sustainable agricultural development It contributes to raising the standard of living of farmers.

Skills		
	modern The ability to understand	
	and apply methods of prevention	
	.them practically	
	agricultural Dealing with -B2	
	. crises and problems	
	foundations strong Building -B3	
	plant for students in And scientific	
	protection	
	Value	

abilities 'Developing students to share ideas

#### and learning strategies

- Providing students with the basics and additional topics related to the previous learning outcomes of skills, to solve practical problems
  - .Applying topics studied theoretically at the practical level -
- practical lessons to conduct some applied research Asking students during –
  . under the supervision of their teachers
  - by academic staff laboratories Visit to practical -

#### **Evaluation methods**

- . exams and monthly
- . And final exams Semester
- .Participation marks for competition questions for academic subjects
  - . report writing Grades for homework and
    - Delivering scientific seminars

education institution						
Prepari	ng the	Requirem	Spec	ialization		Instructor's
teachir	ng staff	ents/spec			Scientific rank	name
lecturer	angel	ial skills	private	general		
			Insects insect ) classificati (on	Plant Protectio n	Assistant Professor	Ali Abdul Hussein Karim
	V		Bacterial plant diseases	Plant Protectio n	.Mr	Raja Ghazi Abdel Mohsen
			Plant diseases/p lant viruses	Plant Protectio n	.Mr	Aqeel Nazzal Berber
			Plant diseases/ mycotoxin s	Plant Protectio n	.Mr	Yasser Nasser Hussein
	$\sqrt{}$		Plant diseases/p lant viruses	Plant Protectio n	.Mr	Adnan Abdel Jalil Lahof
	V		An agricultura I dream	Plant Protectio n	.Mr	Taha Musa Muhammad
	V		Insects storehous) (e insects	Plant Protectio n	Assistant Professor	Sinai Muslim Abdul Hussein
	V		An agricultura I dream	Plant Protectio n	Assistant Professor	Mushtaq Talib Muhammad Ali
	V		Biochemis try	chemistr y	Assistant Professor	Ibrahim was greeted by Kazem
	√ 		Plant diseases/f ungi	Plant Protectio n	Assistant Professor	Mohsen Abdel Ali Mohsen
	V		Plant diseases/n ematodes	Plant Protectio n	Assistant Professor	Istabraq Muhammad Abdel Reda

T /	Diamat	Diamat	Assistant Duefesson	Ola Hadi Japfan
1	Plant	Plant	Assistant Professor	Ola Hadi Jaafar
	diseases/f	Protectio		
	ungi	n		
$ \hspace{.05cm} \hspace{.05cm} \hspace{.05cm} $	Insect/biol	Plant	Teacher	Thamer Salman
	ogical	Protectio		Jabr
	resistance	n		
	Plant	Plant	Teacher	Haider Abdel
	diseases/f	Protectio		Hassan Ali
	ungi	n		
V	Plant	Plant	Teacher	Kazem Hussein
'	diseases/f	Protectio		Kazem
	ungi	n		
V	Insects/be	Plant	Teacher	Lina Qassem Eidan
V	es	Protectio	10001101	
		n		
1/	Insects	Plant	Teacher	Ali Abdul Reda
$ \hspace{.05cm}  \hspace{.05cm}  $		Protectio	1 Julion	Haider
				Taluel
. /	Plant	n Plant	Teacher	Warif Muhammad
\ \ \ \ \ \ \		Protectio	i eachei	
	diseases			Hanoun
	lingante	n Diamet	Taraban	NA A la
1	Insects	Plant	Teacher	Manar Ahmed
		Protectio		Abbas
		n		1
$ \hspace{.05cm} \hspace{.05cm} $	Insects	Plant	Teacher	Ashwaq Hossam
		Protectio		Ibrahim
		n		
$ \hspace{.05cm} \hspace{.05cm} $	Insects	Plant	Teacher	Hussein Ali Baqir
		Protectio		
		n		
$ \hspace{.05cm} \hspace{.05cm} $	Plant	Plant	assistant teacher	Nour Kazem Nasser
	diseases	Protectio		
		n		
	Insects	Plant	Teacher	Raad Karim Mjbil
		Protectio		
		n		
V	Plant	Plant	assistant teacher	Alaa Talib Salem
	diseases	Protectio		
		n		
V	Insects	Plant	assistant teacher	Ahmed Brir Ahmed
		Protectio	2.20.0.0	
		n		
1/	An	Plant	assistant teacher	Karar Abdel Zahra
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	agricultura	Protectio	assistant teather	Mahdi
	I dream			IVIALIUI
		n Plant	assistant teacher	Nour Ali Khazal
\ \ \ \ \ \ \ \ \	Plant		assistant teacher	INOUL ALL MIAZAL
	diseases	Protectio		
,		n	İ	i

V	Insects	Plant Protectio n	assistant teacher	Muhammad Maitham Abdul Hay
V	Insects	Plant Protectio n	assistant teacher	Zahraa Jawad Kazem
V	Plant diseases	Plant Protectio n	assistant teacher	Maryam Hussein Jafat
V	Plant diseases	Plant Protectio n	assistant teacher	Barir Ahmed Nasser
V	Plant diseases	Plant Protectio n	assistant teacher	Zeina Mutlaq Mohsen
	Insects	Plant Protectio n	Assistant Professor	Samah Sami Suwaidan

Professional development
Orienting new faculty members
Professional development for faculty members



The most important sources of information about the program .7

-Dr. Khaled Muhammad Al Chemical pesticides in plant protection

Adel

Azzawi-Dr. Abdullah Falih Al General and applied entomology

Dr. Moayed Ahmed Younis Dr. Mouloud Kamel Abd Insect ecology

Dr. Abdel Baqi Muhammad Hussein Dr. Mouloud Kamel Insect Ecology

Abd

## Program development plan .8

scientific purpose of the and the use of electronic devices for plant protection Using new concepts in the field of -1 research

2-



# for the The semester curriculum for the Plant Protection Department 2024-2023 year

the second semester (spring)	'The first stage	First semester (	(fall)
the second semester (spring)	· I ne m st stage	THE SCHICSTELL	1am)

			( 1 <i>8</i> )							
Study unit	My	My	Subject Name	Study unit	My	My	Subject Name	T		
	wor	watc			wor	watc				
	k	h			k	h				
	hour				hour					
3.5	3	2	organic chemistry	3.5	3	2	principles Soil	1		
3.5	3	2	Principles of	2	-	2	of Principles	2		
			insects 2				agricultural economics			
3.5	3	2	General animal	3.5	3	2	insects 1 of Principles	3		
3.5	3	2	General plant	2	-	2	mathematics	4		
3.5	3	2	Gardening	2	-	2	English language The	5		
			principles				1			
1.5	3	-	Computer	1	-	1	human Democracy and	6		
			applications 2				rights			
1.5	18	10	the total	1.5	3	-	applications 1	7		
				2	-	2	Arabic			
				17.5	9	13	the total			

## the second semester (spring) <a href="The second stage">•The second stage</a> First semester (fall)

Study unit	My	My	Subject Name	Study unit	My	My	Subject Name	T
	wor	wat			wor	watc		
	k	ch			k	h		
	hour				hour			
3.5	3	2	and Medical	3.5	3	2	Principles of	1
			veterinary				microbiology	
			entomology					
3.5	3	2	machines Control	3.5	3	2	Plant classification	2
			and equipment					

3.5	3	2	Structure and	3.5	3	2	Principles of field	3
3.5	3	۷	of classification	3.5	٦	۷	*	3
			insects				crops	
3.5	3	2	nutrition Plant	2	-	2	Agricultural guidance	4
1	-	1	Freedom and	3.5	3	2	Phosphorus is a plant	5
			democracy				_	
1.5	3	-	Computer	3.5	3	2	animal production	6
			4 applications					
3.5	3	2	Analytical chemistry	3.5	3	2	Principles of statistics	7
2	-	2	Arabic	1.5	3	-	Computer applications	8
							3	
2	-	2	is language The	24.5	21	14	the total	9
			2 English					
2	-	2	Crimes of the					
			defunct Baath Party					
26	18	17	the total					



# for the The semester curriculum for the Plant Protection Department 2024-2023 year

**Second semester (spring)** 

**Third stage** First semester (autumn)

Study unit	My	My	Subject Name	Study unit	My	My	Subject Name	T
	work	watc			wor	watc		
	hour	h			k	h		
					hour			
3.5	3	2	Plant breeding	3.5	3	2	Biochemistry	1
3.5	3	2	Beekeeping	3.5	3	2	heredity	2
3.5	3	2	Jungles and ways	3.5	3	2	Insect phlegm	3
			to combat them					
3.5	3	2	Plant diseases	3.5	3	2	Caecilians	4
3.5	3	2	2 Fungi	3.5	3	2	1 Fungi	5
3.5	3	2	Ecology	3.5	3	2	Agricultural	6
							biotechnology	
3.5	3	2	Design and analysis	2	-	2	3 English language	7
			of experiments					
24.5	21	14	the total	23	21	14	the total	

#### the second semester (spring) <a href="https://www.theso.org/">The fourth stage</a> First semester (fall)

Study unit	My work hour	My watc h	Subject Name	Study unit	My wor k hour	My watc h	Subject Name	T
3.5	3	2	Fruit diseases	3.5	3	2	Field crop diseases	1
2	-	2	Integrated pest management	3.5	3	2	Pesticides	2
3.5	3	2	Field crop insects	3.5	3	2	Insect environment	3
3.5	3	2	Plant viruses	3.5	3	2	Store pests	4
3.5	3	2	An agricultural dream	3.5	3	2	Bioresistance	5
3.5	3	2	Orchard insects	3.5	3	2	Vegetable diseases and protected agriculture	6
1.5	3		research project	1	-	1	Seminars	7
2	-	2	4 English language	1.5	3	-	research project	8
23	18	14	the total	23.5	21	13	the total	

				e Name					
				English 1					
	Course Code .2								
	U0P1								
			Semeste	r / year	.3				
			chapter,	the first	stage				
		date Preparat	ion this the des	cription	.4				
				2	024/4/4				
	shapes the	audience In-pe	erson lectures a	vailable	.5				
	<u> </u>	<u> </u>		My pre					
	numbe	er hours Study	( 30 ) number U						
			,	, ,					
na	me responsible	The decision A	Academic ( if mo	ore from	name				
	-		Mentions	ed ) And	l email				
		M.D. F	laider Abdel Ha	ssan Al-	-Darab				
			haider.abid@	uokerbala	a.edu.iq				
			Goals	The de	cision				
Language a	ınd grammar		Goals Subjec	ct Schol	arship				
		Strateg	ies education A	nd lear	ning .9				
					The				
				st	rategy				
		Reading, w	riting, speaking		0,5				
				]					
			structure Th	e decis	ion .10				
road	road	name Unit or	Outputs	hours	the				
Evaluation	Learning	the topic	Learning		week				
			required						
Daily and	, Lectures	Parts of plants		2	1				
monthly	discussions								
exams	scientific ,		Parts of plants						
	reports and								
	films								
Daily and	, Lectures	Reading and		2	2				
monthly	discussions	Language	Reading and						
exams	scientific,		Language						
	reports and films								
Daily and	, Lectures	Grammar		2	3				
_	,			_	•				
monthly	,discussions		Grammar						
monthly exams	discussions, reports and		Grammar						

	scientific				
	films				
Daily and	, Lectures	Life cycle of		2	4
monthly	discussions	plant		-	•
exams	scientific ,	· ·	Life cycle of		
52131113	reports and		plants		
	films				
Daily and	, Lectures	Reading		2	5
monthly	discussions	o l			
exams	scientific ,		Reading		
	reports and				
	films				
Daily and	, Lectures	Language and		2	6
monthly	discussions	grammar			
exams	scientific ,		Language and		
	reports and		grammar		
	films				
Daily and	, Lectures	Composition of		2	7
monthly	discussions	soil	Commonition of		
exams	scientific ,		Composition of soil		
	reports and		SOII		
	films				
Daily and	, Lectures	Reading		2	8
monthly	,discussions				
exams	reports and		Reading		
	scientific				
	films				
Daily and	, Lectures	Language and		2	9
monthly	discussions,	grammar	Language and		
exams	reports and		grammar		
	scientific		granniai		
	films				
Daily and	, Lectures	Manures and		2	10
monthly	discussions	fertilizers	Manures and		
exams	scientific ,		fertilizers		
	reports and		Ter emzers		
	films				
Daily and	, Lectures	Reading		2	11
monthly	discussions				
exams	scientific ,		Reading		
	reports and				
	films				
Daily and	, Lectures	Language and		2	12
monthly	,discussions	grammar	Language and		
exams	reports and		grammar		
	scientific		3		
D. II	films				
Daily and	, Lectures	Control of plant	Control of plant	2	13
monthly	,discussions	disease	disease		
exams	reports and				

	scientific films				
Daily and	, Lectures	Language		2	14
monthly exams	discussions, reports and		Language		
	scientific films				
Daily and	, Lectures	Animal world		2	15
monthly exams	discussions scientific, reports and films		Animal world		
		Parts of plants	Parts of plants	2	

	evaluation The decision .11
	Sources Learning And teaching .12
	) Books decided Required
	( methodology that Found
English language	the reviewer Home ( Sources )
Head way	<b>Books And references Prevailing</b>
	that recommend With it (Magazines
	( Reports ,scientific
	Electronic references, websites

# **Course description for the Arabic language subject**

	Course Nam	ne .1
	Arab	oic
	Course Cod	de .2
		UOP213
	Semester / yea	ar .3
	Fi	irst 2023
date Preparation this	the description	on .4
shapes the aud		
		resence
number hours Academic ( total ) numb	•	•
name responsible The decision Academic ( if more from name M		34
waead.h@uokerbaia.edu.ig millimeter . Waee		nu eman
waeau.neuukerbala.euu.iq iiiiiiiiiletei . vvaee	Goals The	docision
Course objectives		Subject
.Developing a spirit of pride in the Arabic language -1		olarship
.Developing the student's linguistic skills -2		•
.Raising the professional and research level of students -3		
Developing the grammatical and literary abilities of university -4		
.students		
Strategies edu	cation And lea	
		The
Lecture, use of the blackboard, and pres. Demonstrations using diagrams and.		strategy
Demonstrations using diagrams and. Interactive dis	•	
	ducation -	
.Organizing lectures prepared by	students -	

# **Course structure**

Evaluation method	Teaching method	Name of the unit/topic	Required learning outcomes	hours	the week
Exams	theoretical	The importance of the Arabic language  Why do we study the Arabic language and what is its importance? Why is the Arabic language called the ?language of the Qur'an What are the other names for ?the Arabic language	BSC	2	1
Exams	theoretical	Interpretation and memorization of twenty ,verses from Surat Yusuf ,while examining the words their connotations, and meanings, and highlighting the rhetorical and educational .aspects they contain	BSC	2	2
Exams	theoretical	Grammar rules (speech and (what it consists of What's the talk? What is the ,difference between speech speech and word? What are	BSC	2	3

		the parts of the word? What ,are the signs of nouns verbs, letters and their			
Exams	theoretical	?divisions  The verbal sentence and types of verbs in terms of ,immanence, transgression .correctness, and impairment	BSC	2	4
Exams	theoretical	Nominal sentence What is the nominal sentence? What is the definition of subject and predicate? What are the types of beginner? What are ?the types of news	BSC	2	5
Exams	theoretical	Abrogators of the nominal .sentence (abrogating verbs)	BSC	2	6
Exams	theoretical	Letters similar to the verb their meanings, and parsing examples of them	BSC	2	7
Exams	theoretical	First month exam	BSC	2	8
Exams	theoretical	Objects in the Arabic language (object, absolute (object, direct object	BSC	2	9

10	2	BSC	Numbers, their writing rules. and their parsing	theoretical	Exams
11	2	BSC	The :Arabic Literature beginnings of prose and its types, and memorizing selections from it Arabic poetry: The eras of Arabic poetry and its artistic and thematic features (The art of the article) while memorizing selected models	theoretical	Exams
12	2	BSC	Abu Al-Ala Al-Maarri (his life, topics, and literary works) with memorizing verses from the poem (All of (Life is Tired	theoretical	Exams
13	2	BSC	What is the life of the poet ?Abu Firas Al-Hamdani Reading the poem: (The Screaming Dove) with Analyze .precise movements and clarify the poem's verses	theoretical	Exams

		Literary text: P	oet: Abu .			
		Firas Al	–Hamdani			
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Paper exam	Lectures	Human rights in heavenly religions	Human rights in heavenly	2	4
		g.cg	religions		
Paper exam	Lectures	Human rights and their relationship to other variables	Human rights and their relationship to other variables	2	5
Paper exam	Lectures	The relationship of rights to law	The relationship of rights to law	2	6
Paper exam	Lectures	The relationship of rights and duties	The relationship of rights and duties	2	7
Paper exam	Lectures	The most important basic human rights	The most important basic human rights	2	8
Paper exam	Lectures	The impact of globalization on human rights	The impact of globalization on human rights	2	9
Paper exam	Lectures	The most important international human rights declarations and conventions	The most important international human rights declarations and conventions	2	10
Paper exam	Lectures	Universal Declaration of Human Rights in 1948	Universal Declaration of Human Rights in 1948	2	11
Paper exam	Lectures	Cairo Declaration on Human Rights in Islam	Cairo Declaration on Human Rights in Islam	2	12
Paper exam	Lectures	Human rights in international conventions and laws	Human rights in international conventions and laws	2	13
Paper exam	Lectures	International Covenant on Civil and Political Rights	International Covenant on Civil and Political Rights	2	14
Paper exam	Lectures	Human rights and their relationship to life variables	Human rights and their relationship to life variables	2	15

	evaluation The decision .1:				
	Final theoretical exam	Final practical test	Daily theoretical tests	Practical quarterly tests	Theoretical semester tests
	%50				%50
Sources Learning And teaching				nd teaching .12	

	) Books decided Required
	( methodology that Found
	the reviewer Home ( Sources )
Islam in the battle of civilization	Books And references Prevailing
	that recommend With it (Magazines
	( Reports ,scientific
The intellectual and the authority	Electronic references, websites

Course name:	General Botany Theory .1
	, ,
	BOTA1 Course code .2
Second competer / first stars / 2022 202	A Compostor Lygor 2
Second semester / first stage / 2023-202	24 Semester / year .3
date Preparation th	nis Description 2/1/2024 .4
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shapes the audience Availab	le, attendance required .5
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number hours Academic ( total ) number	r Units ( total ): 5 hours    .6 ek. Number of units: 3.5
per wee	ek. Number of units. 3.5
name responsible The decision Academic	c ( if more from name Mention
and email: Dr	. Suzan Muhammad Khudair (
suza	an.mohammed@uokerbala.edu.iq
	. 1
Goals The course aims to familiarize the	
botany and its various branches, and to f	
basic principles of botany in terms of app	
and the most important environmental	
student also understands the basics of taxonomic status of the kingdoms of liv	•
the student the necessary skill to disti	
the student the necessary skin to disti	other living organisms.
	other fiving organisms
Enabling students to know the	Goals Subject Scholarship
different parts of the plant, the	
types of plants, how to	
distinguish between them, and	
the environmental factors	
affecting them	
Strateg	gies education And learning .9
Focus on agricultural aspects by li	_
practical and theoretical	
Field visits: to some nurseries for the pu	-
distinguishing between monocotyledo dicotyledonous plants and classify	
according to the	<b>.</b>
Using plant samples and drying them,	-
as enabling the student to distinguish be	
	samples
E-learning resources: providing video	clips and -3 s activities
VARIALIA	activities

Active Learning: Group Discussions Urging students into group discussions

Continuous assessment: assignments, reports, and tests to determine the extent of students' understanding and comprehension Linking botany to all other sciences -6

structure The decision .10						
road	road	name Unit or the	Outputs	hours	the	
Evaluation	Learning	topic	Learning	ilouis	week	
Lvaluation	Learning	topic	required		WEEK	
Doily and	Looturoo	A historical	<u> </u>	-	4	
Daily and	Lectures ,		Knowledge	5	1	
monthly	discussions	overview of				
exams	scientific ,	botany and the				
	reports and	study of the				
	films	importance of				
		plants				
Daily and	Lectures,	Sections of	Knowledge	5	2	
monthly	discussions	botany, plant	_			
exams	scientific ,	characteristics				
	reports and	and types				
	films					
Daily and	Lectures ,	Gymnosperms	Knowledge	5	3	
monthly	discussions	and				
exams	scientific ,	angiosperms				
	reports and					
Doily and	films	Managet and	Knowledge		-	
Daily and monthly	Lectures , discussions	Monocot and dicotyledonous	Knowledge	5	4	
exams	scientific ,	plants				
CAUIIS	reports and	piants				
	films					
Daily and	Lectures,	Organic	Knowledge	5	5	
monthly	discussions	chemical	J			
exams	scientific ,	compounds in				
	reports and	plants and				
	films	their types				
Daily and	Lectures ,	Inorganic	Knowledge	5	6	
monthly	discussions	chemical				
exams	scientific ,	compounds in				
	reports and	plants and				
Deilerand	films	their types	Manual ada :		-	
Daily and	Lectures,	Factors	Knowledge	5	7	
monthly	discussions	affecting plant				
exams	scientific , reports and	growth: water,				
	films	light, temperature,				
	111115	temperature,				

				1	
		nutrients, and organizations			
Daily and	Lectures ,	Plant groups,	Knowledge	5	8
monthly	discussions	their shapes	Kilowicage	3	0
exams	scientific ,	and types,			
CAUITS	reports and	bacteria and			
	films	fungi Lichens			
	111113	and algae			
Daily and	Lectures ,	The plant cell,	Knowledge	5	9
monthly	discussions	its	ittiottioago		3
exams	scientific ,	components,			
	reports and	shapes and			
	films	composition			
Daily and	Lectures,	Plant tissues,	Knowledge	5	10
monthly	discussions	their shapes	J		
exams	scientific ,	and features			
	reports and				
	films				
Daily and	Lectures,	Roots, their	Knowledge	5	11
monthly	discussions	functions and			
exams	scientific ,	types			
	reports and				
	films				
Daily and	Lectures ,	Stems: their	Knowledge	5	12
monthly	discussions	types, shapes			
exams	scientific ,	and functions			
	reports and				
Daily and	films	l agrega Alagie	Managara da a	_	
Daily and	Lectures,	Leaves, their	Knowledge	5	13
monthly	discussions	structure, parts			
exams	scientific ,	of the leaf,			
	reports and films	their structure and			
	1111115	modifications			
Daily and	Lectures ,	Flowers, flower	Knowledge	5	14
monthly	discussions	parts, floral	Milowicage	3	14
exams	scientific ,	symmetry,			
Oxumo	reports and	inflorescences			
	films	and their types			
Daily and	Lectures ,	The fruit, the	Knowledge	5	15
monthly	discussions	seed , heredity,	3.5		
exams	scientific ,	and			
	reports and	development in			
	films	the plant			
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practical semester exams	cal semester exams are 30%. The .11 are 15%. The daily exams are 5%. The 0%. The theoretical final exam is 30%
	Sources Learning And teaching .12
General Plant - Shawqi et al.	Books decided Required (
1979	( methodology that Found
Al-Sahar, Qasim Fouad, division	the reviewer Home ( Sources )
of botany, 1997, general botany,	
Mujahid, Ahmed Muhammad,	
.1996	
Iraqi academic scientific	Books And references Prevailing
journals	that recommend With it (Magazines
	( Reports ,scientific
Websites concerned with plant	Electronic references, websites
sciences	

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of animal sc	ience and it	s relationship to			
agricultural	sciences				
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	sciences	Strat	egies education A	And lear	ning .9 The
	sciences	Strat	egies education <i>A</i>		
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agricultural	e most impo	rtant animals of the	·		The
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agricultural	e most impo	rtant animals of the	·		The
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			agricultural	
			sciences	
Paper exam	Lectures		,The origin of life	3
		Methods of cell	self-generation	
		division: indirect	and special	
		division and	,creation	
		meiosis	cosmological	
		meiosis	theory and	
			. natural theory	
Paper exam	Lectures		The cellular	4
			structure of the	
			body of an	
		Division of	organism, the cell	
		:animals	wall, the nucleus	
		invertebrates and	and its parts, the	
		vertebrates	cytoplasm and its	
			living and non-	
			living	
			components	
Paper exam	Lectures		,Biomolecules	5
			protoplasm and	-
			its natural and	
			chemical	
			,properties, water	
		Study of simple	,protein	
		epithelial tissues	, carbohydrates	
			fats, nucleic	
			acids, their	
			presence and the	
			nature of their	
			. structure	
Paper exam	Lectures	Germ cells and	, Cell divisions	6
		somatic cells	mitosis , mitosis	
		Somatic ceils	Reductive	
Paper exam	Lectures		Classification of	7
			the animal	
			kingdom and the	
		Organic evolution	principles used to	
			divide animals	
			into different	
			phyla	
Paper exam	Lectures		, primary division	8
			its general	
			characteristics	
		Life and its	and different	
		manifestations	types, and its	
			relationship to	
			animals and	
			plants	
Paper exam	Lectures	Unicellular	The phylum of	9
			flatworms, its	
		) animals	types, types, and	
		( protozoa	its relationship to	

			animals and	
			plants	
Paper exam	Lectures		Nematode	10
r aper exam	Lectures			10
			phylum, general ,characteristics	
			types and	
		the origin of life	,characteristics	
		the origin of the	examples of	
			worms that infect	
			animals and	
			plants	
Paper exam	Lectures		The phylum of	11
r apor oxam	20014100		annelids and	11
			nematodes, their	
			general	
			characteristics	
		Animal parasites	represented by	
		And the human	some species	
		being	widespread in	
		being	agricultural soils	
			and their	
			relationship to	
			agricultural	
			.production	
Paper exam	Lectures		The arthropod	12
			phylum, its	12
		Animals harmful	general	
		to plants	characteristics	
			and types	
Paper exam	Lectures		The phylum	13
			Chordata, its	
			main	
			characteristics	
			and aspects of	
		Rodents harmful	life such as	
		to plants	,digestion	
		·	absorption , blood	
			,circulation	
			,respiration	
			excretion, and the	
			.nervous system	
Paper exam	Lectures		Chemical	14
			coordination in	
			,the organism	
			hormones and	
		Aquatic animals	,their nature	
		in the Iraqi	pituitary	
		environment	,hormones	
			thyroid	
			hormones, and	
			parathyroid	
			hormones	
Paper exam	Lectures	General Review	adrenergic	15
		Ocheral Neview	, hormones	

	reproductive .hormones ,Reproduction fertilization and fetal growth	
	g	

		E	valuation T	he decision .11	
Final theoretic exam	Final practical test	Daily theoretical tests	Practical quarterly tests	Theoretical semester tests	
%30	%20	%5	%20	%25	
		Sources	Learning A	nd teaching .12	
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		the	reviewer Ho	me ( Sources )	
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	<u>Animalism</u>				
Anima	l science and its	Books	And referer	nces Prevailing	
relationshi	p to agricultural	that reco	that recommend With it (Magazines		
	sciences	5	( Rep	oorts ,scientific	
	Animal study	Elect	ronic refere	nces, websites	

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		matrices	matrices		
2	2	Square	Square	Lectures	Paper exam
		matrices	matrices		
3	2	Conjugate	Conjugate	Lectures	Paper exam
		matrix	matrix	1	
4	2	Determinants	Determinants	Lectures	Paper exam
5	2	Cramer's rule	Cramer's rule	Lectures	Paper exam
6	2	Semester	Semester	Lectures	Paper exam
		exam	exam		
7	2	Derivatives	Derivatives	Lectures	Paper exam
8	2	Trigonometric	Trigonometric		Exam Paper
1		functions	functions		

Paper exam	Lectures	Exponential functions	Exponential functions	2	9
Paper exam	Lectures	Logarithmic functions	Logarithmic functions	2	10
Paper exam	Lectures	integration	integration	2	11
Paper exam	Lectures	Integration of trigonometric functions	Integration of trigonometric functions	2	12
Paper exam	Lectures	Integration of exponential functions	Integration of exponential functions	2	13
Paper exam	Lectures	Integration of logarithmic functions	Integration of logarithmic functions	2	14
Paper exam	Lectures	Semester exam	Semester exam	2	15

			e	valuation T	he decision .11	
	Final theoretical exam	Final practical test	Daily theoretical tests	Practical quarterly tests	Theoretical semester tests	
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				) Books de	cided Required	
			( methodology that Found			
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bod	ok education	Thinking in	Books And references Prevailing			
	m	athematics	that recommend With it (Magazines			
				( Reports ,scientific		
boo	ok introductio	n in theory	Elect	Electronic references, websites		
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And					
Answers					

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			compounds		
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And					
Answers					_
evaluation	My	organic	Linear and cyclic	+ 2n	3
Oral And	presence	chemistry	alkanes and their	3р	
Release			substituted groups		
during					
lecture from					
during					
questions					
And					
Answers					
evaluation	My	organic	Unsaturated organic	+ 2n	4
Oral And	presence	chemistry	compounds: linear	3р	
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during lecture from	<b>F</b> 1555.155	chemistry		3p	
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during lecture from during questions And Answers evaluation	Му	organic	Unsaturated organic	+ 2n	6
during lecture from during questions And Answers evaluation Oral And		·	Unsaturated organic compounds alkynes		6
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Paper exam	Lectures	principles	The role of	2	
i apoi oxam	20010100	Economy	agricultural	2	6
		agricultural	activity in		
			economic		
D			construction		
Paper exam	Lectures	principles	The workforce in	2	7
		Economy	the agricultural		
		agricultural	sector		
		principles	Foundations of	2	8
		Economy	applying		
		agricultural	economic theory		
			in the agricultural		
			sector		
Paper exam	Lectures	principles	Branches of	2	9
		Economy	agricultural		_
		agricultural	economics		
Paper exam	Lectures	principles	Economics of	2	10
		Economy	agricultural	_	10
		agricultural	production		
Paper exam	Lectures	principles	production	2	11
. apor oxam	200141100	Economy	Agricultural prices	2	11
		agricultural	Agricultural prices		
Paper exam	Lectures	Ŭ	A arioultural	2	42
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		Economy	- marketing		
		agricultural	agricultural		
			financing and		
_			credit		
Paper exam	Lectures	principles	Farm	2	13
		Economy	<ul> <li>management</li> </ul>		
		agricultural	agricultural		
			cooperation		
Paper exam	Lectures	principles	- Land Economics	2	14
		Economy	Agricultural Policy		
		agricultural	and Agrarian		
		_	Reform		
Paper exam	Lectures	principles	The socialist	2	15
		Economy	trend in setting		
		agricultural	agricultural policy		
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	evaluation The decision .11					
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	) Books decided Required
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Field visits: Org			cultural research center	re	_
			types of insects and th	10	rategy
. symptoms o	or intection the	ey cause in the most in	portant economic crop Use of technology:		
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Paper exam	Lectures	A historical	Introduction and	5	1
'		overview of insects	historical review		1
		in the world and			
		Iraq and the factors			
		that helped them survive and spread			
		.survive and spread			

Paper exam	Lectures	The economic	Understand the	5	2
		importance of	economic		
		.insects	importance of		
			insects		
Paper exam	Lectures	The external	Knowing the	5	3
		appearance of	external		
		insects	appearance of		
			insects		
Paper exam	Lectures	Layers of the insect	Know the	5	4
-		body wall	components of the	,	7
		,	insect body wall		
Paper exam	Lectures	Head appendages,	Illustrating the	5	
i apoi oxam	Lootaroo	mouth parts, eyes	appendages of the	5	5
		and antennae	head, mouth parts,		
		and antennae	eyes, and antennae		
Danas aven	Lastimas	Thoracic	Illustration of the		
Paper exam	Lectures			5	6
		appendages, wings	appendages of the		
		and legs	chest, wings and		
			legs		
Paper exam	Lectures	Abdominal	Illustration of	5	7
		appendages and	abdominal		_
		reproductive	appendages and		
		system	reproductive		
			system		
		Monthly exam	Monthly exam	5	8
Paper exam	Lectures	Methods of	Knowledge of the	_	9
i apei exam	Lectures	reproduction in	most important	5	9
		insects	methods of		
		ilisects	reproduction in		
			_		
Donor over	Lasturas	Mandina	insects		
Paper exam	Lectures	Moulting	Know how molting	5	10
			occurs and its		
			importance		
Paper exam	Lectures	Change or	Know the most	5	11
		formation	important types of		
			change		
Paper exam	Lectures	Feeding habits of	Know how insects	5	12
		insects	get their food		
Paper exam	Lectures	Excretion in insects	Explain how insects	5	13
•			get rid of their	,	13
			body waste		
Paper exam	Lectures	General methods of	Know the most	5	14
		pest control	important methods	5	14
		P301 00111101	of pest control		
		Monthly exam	Monthly exam	_	4-
		Monthly Chain	monuny exam	5	15

	evaluation The decision .11
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Basics of entomology .1	Books decided Required (
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General Entomology, Ibrahim Kadouri	the reviewer Home ( Sources )
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Arab Plant Protection Journal, Karbala Journal of Agricultural Sciences	Books And references Prevailing that recommend With it (Magazines ( Reports ,scientific
Electronic reference for informatics	Electronic references, websites

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		visits to farms and agric vith the most important			rategy
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			required		
Paper exam	Lectures	A historical	Know a brief history	5	1
		overview of insect	of insect classification		
1	Ì	classification and	Ciassilication		1

the most important taxonomic features The most important characteristics of

Paper exam

Lectures

Learn about the most important

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		characteristics of	wingless, endowing		
		wingless, inner-	and external insects		
		winged and outer-			
		winged insects			
	5	Knowledge of the	The most important	Lectures	Paper exam
	٦	most important	orders of wingless		•
		insect orders	insects		
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		insect orders	insects		
	_		Completing the	Looturoo	Donor ovem
	5	Knowledge of the		Lectures	Paper exam
		most important	most important		
		insect orders	orders of endowing		
			insects		
	5	Knowledge of the	An overview of the	Lectures	Paper exam
		most important	internal anatomy of		
		internal organs of	insects		
		insects			
	5	clarification	The nervous system	Lectures	Paper exam
	3	the Components of	in insects		
		nervous system in			
		insects			
	_	Monthly exam	Monthly exam		
	5	Wiontiny exam	Worlding exam		
	5	Explaining the	Digestive system in	Lectures	Paper exam
	3	components of the	insects		
		digestive system in			
		insects			
		Explaining the	Respiratory system	Lectures	Danor ovam
:	5			Lectures	Paper exam
		components of the	in insects		
		respiratory system			
		and methods of			
		breathing in insects			
1	5	Knowledge of the	The excretory	Lectures	Paper exam
-		excretory system in	system in insects		
		insects and			
		methods of waste			
		disposal			
	5	Knowledge of the	The circulatory	Lectures	Paper exam
-	5	components of the	system in insects		. upo: onu
		circulatory system	Cyclom in mocolo		
		in insects			
	_		The most important	Lectures	Paper exam
:	5	Explaining the		Lectures	Paper exam
		types of glands in	glands in insects		
		insects and their			
		relationships to			
		moulting and			
		metamorphosis			
	5	Knowledge of the	How are pesticides	Lectures	Paper exam
•	٦	most important	?divided		-
		pesticides used in			
		insect control			
		Monthly exam	Monthly exam		
	5	monthly exam	monthly exam		
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Sources Learning And teaching .12

Basics of entomology .1 General entomology .2	Books decided Required ( ( methodology that Found
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Arab Plant Protection Journal, Karbala Journal of Agricultural Sciences	Books And references Prevailing that recommend With it (Magazines ( Reports ,scientific
Electronic reference for informatics	Electronic references, websites

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road	road	knock Too me	structure The Outputs	e st	ion .10
road	road	name Unit or the topic	structure Th Outputs Learning required Concept	e st	ion .10
road	road	name Unit or the topic  Identify the different fruit	structure The Outputs Learning required Concept Gardening,	e st	ion .10 the week
road	road	name Unit or the topic  Identify the different fruit trees, distinguish	structure The Outputs Learning required Concept Gardening, classification the	e st	ion .10 the week
road	road	name Unit or the topic  Identify the different fruit trees, distinguish between them, and learn about	structure The Outputs Learning required Concept Gardening, classification the plants gardening, Brief Historical	e st	ion .10 the week
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	the fruit, to divide		
Establishing fruit	trees the fruit,		
orchards, the	factors		
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must be taken	And her		
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	Successfully		
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them, tree	the fruit These		
planting methods,	include :		
and planting	temperature,		
distances	Humidity, wind,		
	the light And		
	factors the soil		
A brief	Increase trees	_	~
		5	3
explanation of the	the fruit,		
processes of	Excessiveness		
raising and	Sexual And a lot		
pruning fruit trees	Asexual		
Training on	Develop	5	4
methods of	Comforts And		
sexual	stillness in trees		
propagation by	the fruit,		
seeds for some	construction		
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fruit crops			
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different	Environmental		
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Planting diyas in a sustainable place, fertilizing plants	Sovereignty Apical in the plants	5	9
Practical training on how to fertilize fruits and vegetables, identifying annual flowers, trees and shrubs in the department, and explaining methods of .multiplying them	Adornment : definition plants Decorations , to divide plants Decorations	5	10
Getting to know some climbers, bulbs, and hedge plants, methods of propagating them, and the scientific names of some of them	factors Environmental And her relationship Successfully agriculture plants Decorations	5	11
Learn about the department's cold stores and methods of storing horticultural crops	Flats Green	5	12
Division of fruits and vegetables from a botanical, physiological and anatomical perspective	Trade And care And store The results Gardening	5	13
Identify the most important physical and chemical characteristics that determine ripening time and detection . methods	growth And develop And he matured The fruits And types The fruits	5	14
General Review	review General	5	15

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Paper exam	Lectures	Preparing the soil for physical analyses	Origin and development of . soil	3
Paper exam	Lectures	Estimating the moisture content . in the soil	Physical . properties of soil	4
Paper exam	Lectures	Estimating some physical properties of soil bulk density	. Soil water	5
Paper exam	Lectures	true density,	Colloids and soil chemical properties	6
Paper exam	Lectures	Semester exam	Soil salinity and . alkalinity	7
		,Porosity volumetric analysis of soil . particles	Semester exam	8
Paper exam	Lectures	Prepare the saturated paste for the soil	Reclamation of lands affected by salts and management of reclaimed soils	9
Paper exam	Lectures	Measurement of EC andpH	and-Biological biochemical . properties of soil	10
Paper exam	Lectures	Determination- of dissolved ions in the soil solution	. Soil fertility	11
Paper exam	Lectures	Estimation of- organic matter in . the soil	. Plant nutrition-	12
Paper exam	Lectures	the- Estimating carbon content of . soil	Soil classification and management . in Iraq	13

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Introduction to the basics of soil science - 2013 - Dr. Nour Al-Din Shawqi Ali - under preparation	the reviewer Home ( Sources )
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		agricultural	Guidance :		
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Paper exam	Lectures	principles	the means Indicative: Classification Methods And advantages And determinants Use all Type . B - Considerations the duty Observe it in a test The method . C - Means educational, Classification And considerations the duty Observe it in . Use it Calendar 11-	2	11
		Guidance agricultural	Programs Guidance: definition With a calendar the program . B - Elements practical Calendar	2	11
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## Threads

	Numb er	Article The	Numb er	Article Theory	The week
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		General laboratory instructions and identification of laboratory devices and equipment.		1- Introduction to microbiology. A historical overview of the development of microbiology, the ,theory of abiogenesis +B40+B45:B46+B45:B47+B4+B45	1

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			.640	
3	2- Cultivation media and how to prepare and sterilize them.	2	2- The location of microorganisms among living organisms.  Microbiological characteristics – culture characteristics, phenotypic appearance. Metabolic properties chemical properties, genetic - properties, divisional status of microorganisms.	2
3	3- Isolating and purifying microorganisms - Isolation methods: Isolation: from soil, water, air, from infected plant parts.	2	3- The structure of bacteria and the functions of their parts. External structures - flagella, cilia, cell wall, internal structures - plasma membrane, ribosomes, genetic material.	3
3	4- Purifying bacteria and studying the characteristics of bacterial colonies shape, color, effect on the culture ) ( medium	2	4- Nutrition of microorganisms. Bacterial nutrition - bacterial culture media , growth factors, inorganic nutrients, transport of nutrients across the plasma membrane.	4
3	5- Study the pathogenicity of microorganisms isolated from infected plants. Bacteria – on potato slices, tobacco plants. Mushrooms - on plant families. Virus - on plant hosts.	2	5- Growth and reproduction of bacteria. Isolation of bacteria in pure culture, preservation of bacterial cultures, cell cycle, growth phases, estimation of bacterial growth, continuous bacterial culture.	5
3	6- Bacterial staining – simple staining, gram stainStudy the shape of bacteria (spherical, rod-like)	2	6- Mycoplasma , Phytoplasma , Rickettsia.	6
3	7- Bacterial counting: directly with an optical microscope or on the culture medium using the dilution method. Examining the movement of bacteria using a hanging drop.	2	7- The first monthly exam.	7
3	8- Yeasts and molds : knowledge of morphological characteristics, examination of mycelium and spores microscopically.	2	8- Bacterial enzymes. Endogenous enzymes, exogenous enzymes, physical and chemical properties of enzymes, specialization, naming of enzymes, nature of enzymatic reactions, mechanism of enzyme action, enzyme inhibition, bacterial metabolism, energy production, and energy use.	8
3	9- Examination of microorganisms in milk and other processed foods.	2	9- Inheritance of microorganisms . ,Nucleic acid synthesisDNA replication, RNA cloning, protein synthesis, variation in bacteria,	9

3		2	genetic mutations, genetic exchange (conjugation), genetic transformation, gene transfer.  10- Viruses their discovery, physical properties, and chemical	
	10- The effect of some physical factors on the growth of microorganisms.		composition. Division of viruses, bacterial viruses, animal viruses, plant viruses, the importance of viruses, viroids.	10
3	10- The effect of some chemical pesticides and antibiotics on the growth of microorganisms.	2	11- Fungi. External appearance, parasitism, fungal cell structure, mutations in the vegetative structure of the fungus, reproduction, division of the fungus. Algae: external appearance, reproduction, economic importance of Botozoa algae: existence, reproduction, division.	11
3	12- Examination of samples of heavy water - testing for the presence of viruses and bacteria.	2	12- Soil microorganisms. Soil ,environment: temperaturepH , light, organic matter (types, composition), factors affecting its spread in the soil. Microorganisms in food—sources of food contamination, control of sources of contamination, microorganisms ,in milk and milk products Microorganisms in vegetables and fruits. Microbial spoilage of food, microbiology and food processing, food poisoning.	12
3	13 Biotechnology: industrial fermentations, microbial enzymes, metabolic microbial products, life transformations, genetic engineering and its applications.	2	13- Microorganisms in water. Factors affecting the spread of microorganisms in water, sources of water pollution (floods, sewage, agricultural chemicals), the relationship between microorganisms and humans, microorganisms naturally present in the human body (their benefits and harms).	13
3	14- The relationship between microorganisms and plants	2	14- Control of microorganisms. Immunity - antigens, antibodies (types, composition), immune response, immune cells, interaction of antibodies and antigens, immunological tests, antibiotics, antibiotic-producing organisms.	14
3	Review and exam	2	15- The second monthly exam. Benefits of plant microorganisms,	15

	microorganisms that cause plant diseases (bacteria, fungi, viruses, snakeworms).	
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Paper exam	Lectures	freedom  Meanings of . freedom  Distinguish between freedom . and anarchy A study of the most important . civil liberties A study of the	freedom  Meanings of . freedom  Distinguish between freedom . and anarchy  A study of the most important . civil liberties  A study of the		2	
Paper exam Paper exam	Lectures  Lectures	freedom Meanings of . freedom Distinguish between freedom . and anarchy A study of the most important . civil liberties A study of the most important	freedom  Meanings of . freedom Distinguish between freedom . and anarchy A study of the most important . civil liberties A study of the most important		1 2 3	
Paper exam Paper exam	Lectures  Lectures	freedom  Meanings of . freedom  Distinguish between freedom . and anarchy A study of the most important . civil liberties A study of the	freedom  Meanings of . freedom  Distinguish between freedom . and anarchy  A study of the most important . civil liberties  A study of the		1 2 3	
Paper exam Paper exam	Lectures  Lectures	freedom Meanings of . freedom Distinguish between freedom . and anarchy A study of the most important . civil liberties A study of the most important	freedom  Meanings of . freedom Distinguish between freedom . and anarchy A study of the most important . civil liberties A study of the most important		1 2 3	

Paper exam	Lectures	What is meant by	What is meant by	7
		? democracy	? democracy	
Paper exam	Lectures	Forms of	Forms of	8
		. democracy	. democracy	
Paper exam	Lectures	Democratic state	Democratic state	9
		. standards	. standards	
Paper exam	Lectures	Democratic	Democratic	10
		. Constitution	. Constitution	
Paper exam	Lectures	The state and its	The state and its	11
		. forms	. forms	
Paper exam	Lectures	Semester exam	Semester exam	12
Paper exam	Lectures	Democratic	Democratic	13
		elections (concept	elections	
		( .(conditions -	concept - )	
			( .(conditions	
Paper exam	Lectures	Democratic	Democratic	14
		elections	elections (	
		requirements - )	requirements -	
		( objectives	( objectives	
Paper exam	Lectures	General review	General review	15
Paper exam	Lectures			

	evaluation The decision .:					
	Final theoretical exam	Final practical test	Daily theoretical tests	Practical quarterly tests	Theoretical semester tests	
	%50	ı	ı	-	%50	
			Sources Learning And teaching .12			
	Concept Fre	edom And		Books decided Required (		
		democracy	( methodology that Found			
text th	e Constitutio	n The Iraqi	the	reviewer Ho	me ( Sources )	
the permanent on This is						
	amazin	g Freedom				
Demo	cracy And rig	hts Human	Books	And refere	nces Prevailing	
			that reco	that recommend With it (Magazines		
				( Rep	oorts ,scientific	
			Elect	ronic refere	nces, websites	

	Course Name .1					
	Structure and classification of insects					
	Course Code .2					
				II	NTA215	
			Semeste	er / year	.3	
		The sec	ond stage, the sec	cond ser	nester	
		date Prepa	ration this the des	cription	.4	
		·		-	024/4/4	
		shap	es the audience A	vailable	.5	
				My pre		
	(2)	5) number hours	Study ( 75 ) numb			
	( 3	5 / Halliber Hours	otudy (73 ) Hullio	er Office	.0	
nai	ma rasnon	sible The decision	n Δcademic ( if m	ore from	name	
1101	ne respon		Mentions			
		AMDo	n slave ELHussei			
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				s The de		
T 4 1 .	4 1 4 4	41 .				
Introducing			Goals Subje	ct Schol	arsnip	
	nsect classif	<i>'</i>				
	ip with oth	·				
and i	ts importan	-				
		protection				
		Strat	egies education A	and lear		
The student	should be a	able to classify and o	liagnose insects		The	
		v	8	st	rategy	
			structure TI	ne decis	ion .10	
road	road	name Unit or the	Outputs	hours	the	
Evaluation	Learning	topic	Learning		week	
			required			
Exam Paper	Lectures	to divide Insects	Taxonomy, its	5	1	
	Lectures		<b>3</b> /	3	_	
	Lectures	The Classification	definition Its			
	Leciules		definition Its history and relationship to	3	_	
	Leciules	The Classification	definition Its history and relationship to other sciences	,		
	Leciules	The Classification	definition Its history and relationship to other sciences and the stages of	,	_	
Fxam Paner		The Classification of Insect.	definition Its history and relationship to other sciences and the stages of . its development		3	
Exam Paper	Lectures	The Classification	definition Its history and relationship to other sciences and the stages of	5	2	
Exam Paper		The Classification of Insect.  Rank Self Guilt hopper order Collembola -	definition Its history and relationship to other sciences and the stages of . its development Modern taxonomy and its comparison with		2	
Exam Paper		The Classification of Insect.  Rank Self Guilt hopper	definition Its history and relationship to other sciences and the stages of . its development Modern taxonomy and its		2	

	:				
		Leather wings	taxonomic ranks,		
		Dermaptera –	and the formation		
		order mare the	of life types with		
		Prophet	. examples		
		order Mantodea -			
		a fly May			
		Ephemeroptera -			
		Blattodea .Mardan			
Exam Paper	Lectures	Rank Straight	Division of	5	3
		wings Jumping	insects,		_
		Orthoptera –	taxonomic		
		order Tremors	stratification. The		
		Odonata .	class system with		
		o donata i	. examples		
Exam Paper	Lectures	Rank equal	Introduction to	5	4
Examir apor	Locidios	Isoptera – wings	the origin of the	J	7
		order Ciliary	arthropod phylum		
		wings	a historical )		
		•	overview),		
		Thysanoptera .	theories of		
			formation and		
			evolution, a table		
			of the geological		
			history of the		
		-	. Earth		
Exam Paper	Lectures	Exam	Stages of insect	5	5
			emergence,		
			kinship links		
			between		
			arthropods,		
			divisional table of		
			. insects		
Exam Paper	Lectures	Rank Half wings	. Exam	5	6
		Hemiptera .			
Exam Paper	Lectures	Rank Bi wings	Describe insects,	5	7
		Diptera .	its division and		
			sub-orders, with		
			. examples		
Exam Paper	Lectures	Rank Retina	Types of museum	5	8
•					_
		Neuroptera wings	collections,		
		Neuroptera wings –			
		Neuroptera wings –	collections,		
		Neuroptera wings –	collections, styles (types of		
Exam Paper			collections, styles (types of models) with . examples	5	9
Exam Paper	Lectures	Rank	collections, styles (types of models) with . examples Individual plants,	5	9
Exam Paper		Rank membranous	collections, styles (types of models) with . examples Individual plants, their types, and	5	9
Exam Paper		Rank membranous Hymenoptera	collections, styles (types of models) with . examples Individual plants, their types, and the reason for	5	9
Exam Paper		Rank membranous	collections, styles (types of models) with . examples Individual plants, their types, and the reason for their appearance,	5	9
·	Lectures	Rank membranous Hymenoptera . wings	collections, styles (types of models) with . examples Individual plants, their types, and the reason for their appearance, . with examples		
Exam Paper  Exam Paper		Rank membranous Hymenoptera . wings	collections, styles (types of models) with . examples Individual plants, their types, and the reason for their appearance, . with examples Scientific	5	9
·	Lectures	Rank membranous Hymenoptera . wings Rank Squamous Lepidoptera	collections, styles (types of models) with . examples Individual plants, their types, and the reason for their appearance, . with examples Scientific nomenclature, its		
·	Lectures	Rank membranous Hymenoptera . wings	collections, styles (types of models) with . examples Individual plants, their types, and the reason for their appearance, . with examples Scientific nomenclature, its conditions, writing		
·	Lectures	Rank membranous Hymenoptera . wings Rank Squamous Lepidoptera	collections, styles (types of models) with . examples Individual plants, their types, and the reason for their appearance, . with examples Scientific nomenclature, its		

Exam Paper	Lectures	Rank coleoptile Taxonomic Coleoptera .wings keys, with . examples		5	11
Exam Paper	Lectures	Rank Lice Phthriaptera –	Diagnosis of patterns and taxonomic differentiation . with examples	5	12
Exam Paper	Lectures	Rank Hidden wings Siphonaptera .	Taxonomic characteristics and geographical distribution of living organisms according to geographical regions, with examples	5	13
Exam Paper	Lectures	review General	General Review	5	14
Exam Paper	Lectures	Exam	Exam	5	15

	evaluation The decision .:					
	Final theoretical exam	Final practical test	Daily theoretical tests	Practical quarterly tests	Theoretical semester tests	
	%30	%20	%5	%20	%25	
			Sources Learning And teaching .1			
instal	llation And cla	assification		Books decided Required (		
		Insects		( methodole	ogy that Found	
instal	installation And classification			reviewer Ho	me ( Sources )	
Inse	cts : George \	ictory God/				
	Insects Secrets			And referer	nces Prevailing	
			that reco	that recommend With it (Magazines		
				( Reports ,scientific		
			Elect	ronic refere	nces, websites	

Course name: Me	dical and veterinary insects .1
	Course Code .2
	Course Code 1.2
	Semester / year .3
	Second semester 2023-2024
date Pres	paration this the description .4
	12/1/2023
sha	apes the audience Available .5
	My presence
number hours Academic (	total ) number Units ( total ) -6
,	Hours, 3.5 units 5
name responsible The decision Acad	emic ( if more from name Mention
	and email (
sienaa.m@uokerbala.edu.iq :Name:	Prof. Sinai Muslim Al-Zarfi Email
	:Goals Decision
Introducing the student to	:Goals Subject Scholarship
medical and veterinary	
entomology, who is directly	
interested in studying the life	
of insects	
And arthropods have a	
medical and veterinary	
relationship, in addition to the	
damage they cause and how to	
resist them. The student must be familiar with a lot of	
. biological sciences	
Related to medical entomology	
entomology general such as ,	
and zoology	
and parasitologyZoology	
Animal and Parasitology	
and scienceEcology Ecology	
and , Physiology , pathology	
Epidemiology epidemiology	
and animal wasteHistology	
Copralogy	
Toxicology and to be fully	
familiar with biological	
assessment methods	
And dealing with machines	
and devices used in the field of	
.insects	
Stı	rategies education And learning .9

Focus on the most important medical and veterinary	/ .1	
· inse	orte	

The strategy

Real-life examples: Use real-life examples and case studies in The medical and veterinary field to clarify the . effects

For animal fields Field visits: Organizing field visits -2 Veterinary clinics and public health departments in the Ministry of Health to introduce students to practical applications

Electronic learning resources: Providing electronic learning resources, such as videos and interactive ,exercises

:Active learning .3

Group Discussions: Encourage students to discuss and solve problems together

:Continuous evaluation .4

Assignments and Quizzes: Assess students' understanding of medical and veterinary entomology .through assignments and quizzes

Linking medical and veterinary entomology to other .5 courses

## structure The decision .10

road	road	name Unit or	Outputs	hours	the
Evaluation	Learning	the topic	Learning		week
			required		
Daily	Lectures	introduction In	Understanding	5	1
paper		medical and	medical and		
exam		veterinary	veterinary		
		entomology	entomology		
Daily	Lectures	What is the	Understand the	5	2
paper		importance of	importance of		
exam		medical and	medical and		
		veterinary	veterinary		
		?entomology	entomology		
Practical	Lectures	How are	How to identify	5	3
tests		medical and	the types of		
		veterinary	medical and		
		insects	veterinary		
		?studied	insects		
practical	Lectures	What is the	Distinguishing	5	4
test		difference	between the		
		between	types of		
		medical and	insects that		
		veterinary	infect humans		
		?entomology	(medical) and		
			the types of		

		T			1
			insects that		
			infect animals		
			(veterinary)		
practical	Lectures	The effect of	Providing	5	5
test		insects on	students with		
		human and	the most		
		animal health	important		
			pathogens		
			caused by		
			insects by		
			identifying		
			them		
			.practically		
practical	Lectures	First test	First test	5	6
test					
practical	Lectures	How are	Introducing	5	7
test	Video	medical and	students to the	,	<b>'</b>
1001	7.400	veterinary	most important		
		insects	distinctive		
		?identified	signs for		
		Hachtinea	diagnosing		
			medical and		
			veterinary		
			insects		
proctical	Lectures	What are the	Providing		
practical test	Video		students with	5	8
lest	video	types of medical and			
			laboratory		
		veterinary ?insects	types of medical and		
		rinsects			
			veterinary		
			insects for the		
			purpose of		
			identifying the		
	- ,		species		
practical	Lectures	How are	The ability to	5	9
test	Video	medical and	control medical		
		veterinary	and veterinary		
		insects	insects		
		?controlled			
practical	Practical	Methods of	Introducing	5	10
test	views	transmission	students to the		
		of pathogens	methods of		
			transmitting		
			pathogens		
practical	Practical	How is	Understand the	5	11
test	views	medical and	most important		
		veterinary	methods of		
		control of	medical and		
		insects carried	veterinary		
		?out			
<u> </u>	l .				

			control of ?insects		
practical test		Second test	Second test	5	12
practical test	Practical views	What human and animal diseases are not transmitted by medical and veterinary ?insects	Distinguishes human and animal diseases that are not transmitted by medical and veterinary insects	5	13
practical test		Third test	Third test	5	14
practical test	Lectures	General Review	General Review	5	15

	evaluation The decision .11				
Theoretical semester exams (30%) - Practical semester exams (15%) -					
Daily practical exams (5%) - Practical final exam (20%) - Theoretical					
	.(30%) final exam				
	Sources Learning And teaching .12				
Medical and veterinary - 1	Books decided Required (				
insects / Knowledge Facility in Alexandria / Prof. Dr. Mustafa Saliman	( methodology that Found				
Saleh /2004 Translated by Dr. Ali Muhammad Saleh , 1984					
A guide to the MOServer /-2 world of medical insects .University of Al Mosul	the reviewer Home ( Sources )				
Insects that transmit - 3	Books And references Prevailing				
diseases / The Kuwaiti	that recommend With it (Magazines				
Knowledge World / Prof. Dr. Abu Al- Hab / 1982	( Reports ,scientific				
Medical and veterinary pests Abdel Aleem Saad Suleiman Desouki	Electronic references, websites				
abdelalem2011@yahoo.com Department of Plant Protection (Agricultural Zoology) faculty of Agriculture					

Sohag University	

Course	Name .1
	ant nutrition
	Code .2
Course	PLNU2
Semester .	
Second semester	_
date Preparation this the descri	
auto i roparation tino tiro accor	iption 14
shapes the audience Ava	ailable .5
	My presence
number hours Academic ( total ) number Units (	total) .6
hours	s, 3.5 units 5
name responsible The decision Academic ( if more	e from name
	Mentionsed
: Name : Prof. Kazem Muhammad Ab	dullah Email
kadum.m@uol	kerbala.edu.iq
Goals	The decision
.Learn about plant nutrition • Goals Subject	Scholarship
Identify nutrients and their •	
.divisions	
Learn about the importance of •	
.plant nutrients	
Methods of transporting •	
.nutrients to plants	
Increasing the student's ability •	
to identify soil fertility through	
soil and plant analysis	
Strategies education An	1
Adopting the lecture method and linking each topic .1	The
.with real-world examples	strategy
Teaching the student the basic concepts of the subject .2	
and topics related to knowledge and understanding of the	
.subject	
Theoretical lessons in addition to practical lessons, .3	
observations, exercises, laboratory and field	
.experiments, and writing reports	
Writing reports on topics related to the subject using .4	
the Internet and other sources	

## :Active learning . 5

Group Discussions: Encourage students to ask some .factual questions about the topic

			structure Th	a dacie	ion 10
		nama Hait au		_	1
road Evaluatio	road	name Unit or	Outputs	hour	the
	Learning	the topic	Learning	S	week
n		1 4 1 4	required		
Daily	lectures +	Introduction	Understandin	5	1
paper	laboratory	to plant	g plant		
exam +	experiments	nutrition, its	nutrition and		
report		importance,	its		
writing		division of	relationship to		
		nutrients, and	soil fertility		
		factors	and		
		affecting	fertilization		
		absorption			
Exam	Lectures	Development	Study the	5	2
daily		Historical For	history of		
Paper +		your	plant nutrition		
writing a		information	and its		
report		feed the plant	relationship to		
		And study	the plant cell		
		cell			
		Vegetarianis			
- From	Lasturas	Tymas of	luarana		
Exam	Lectures	Types of	Increase student	5	3
daily Paper +		solutions, their	knowledge		
writing a		properties,	about how to		
report		and method	prepare		
Toport		of	nutrient		
		preparation	solutions		
Exam	Lectures +	content the	Students'	5	4
daily	laboratory	plant from	understanding		-
Paper +		Elements	of the		
writing a		Food	proportions of		
report			elements in		
			plants		
Exam	Lectures	absorption	Students'	5	5
daily		Elements	knowledge of		
Paper +		Food And	the		
writing a		theories	mechanisms		
report		Related With	and		
		it	hypotheses		

			that explain		
			the entry of		
			element ions		
			into plants		
Exam	Lectures	absorption	Students'	5	6
daily		Elements	knowledge of		
Paper +		Food And	the		
writing a		theories	mechanisms		
report		Related With	and		
		it	hypotheses		
			that explain		
			the entry of		
			element ions		
			into plants		
		Monthly	Monthly exam	5	7
		exam			
Exam	Lectures +	Bioactivities	The student's	5	8
daily	laboratory	of nutrients,	knowledge of		
Paper +	observation	symptoms of	the role of		
writing a	s	deficiency,	each element		
report		toxicity, and	in the plant,		
•		treatment	the symptoms		
		methods	of its		
			deficiency and		
			its treatment,		
			as well as		
			toxicity		
Exam	Lectures +	Bioactivities	The student's	5	9
daily	laboratory	of nutrients,	knowledge of		
Paper +	observation	symptoms of	the role of		
writing a	S	deficiency,	each element		
report		toxicity, and	in the plant,		
		treatment	the symptoms		
		methods	of its		
			deficiency and		
			its treatment,		
			as well as		
			toxicity		
Exam	Lectures +	Bioactivities	The student's	5	10
daily	laboratory	of nutrients,	knowledge of	<b>.</b>	
Paper +	observation	symptoms of	the role of		
writing a	S	deficiency,	each element		
report		toxicity, and	in the plant,		
		treatment	the symptoms		
		methods	of its		
			deficiency and		
			its treatment,		
			as well as		
			toxicity		
			toxicity		

				1	-
Exam	Lectures	relationship	The ability to	5	11
daily		the plant With	understand		
Paper +		water And a	the		
writing a		role This is	relationship of		
report		amazing	water to the		
-		Relationship	absorption of		
		With nutrition	nutrients		
		the plant			
Exam	Lectures	feed the plant	Explaining the	5	12
daily	Loctaros	And quantity	role it plays in	,	12
Paper +		The result	increasing the		
			_		
writing a		relationship)	quantitative		
report		the plant in	and		
		(sum	qualitative		
		_	outcome		
Exam	Lectures +	Salinity the	Explaining the	5	13
daily	views	soil And	relationship		
Paper +	Laboratory	nutrition the	between soil		
writing a	_	feed ,plant	and water		
report		the plant	salinity,		
•		Genetics,	readiness and		
		nutrition the	absorption of		
		plant And	elements		
		diseases the	clarification		
		plant	impact		
		piant	Expression		
			Genetic For		
			plant on Its		
			content from		
			Elements		
			Food And a		
			role this		
			Content in		
			resistance		
			Diseases		
			Vegetarianism		
			different		
Exam	Lectures +	nutrition	Explaining to	5	14
daily	views	Paper ( its	students the		
Paper +	Laboratory	importance	importance of		
writing a		And its flaws	foliar nutrition		
report		A state her	for plants,		
Toport		job And the	why it is used		
		factors	instead of		
		Influential on			
			ground		
		. (her	fertilization,		
			what are its		
			disadvantages		
			the,		
			mechanism		

	Monthly	element's penetration into leaf tissue, and the factors .affecting it	5	15
	exam			

evaluation The decision .11					
Theoretical semester exams (30%) - Practical semester exams (15%) -					
Daily practical exams (5%) - Practical final exam (20%) - Theoretical					
	.(30%) final exam				
	Sources Learning And teaching .12				
Applied plant nutrition/ Fadel	Books decided required				
Hussein Al-Sahhaf. 1989	(methodology that Found)				
Principles of plant nutrition.					
Translated by Saadallah Najm					
Abdullah Al-Nuaimi. University					
of Al Mosul. 1984					
Theoretical and practical plant	the reviewer The main one (Sources				
nutrition (Muzaffar Ahmed	(				
.( 2019 ) .Daoud Al-Mousili et al					
Barker, A. V., & Pilbeam , D. J. (Eds.).	Books And references Prevailing				
(2015). Handbook of plant nutrition.	that recommend With it (Magazines				
.CRC press	( Reports ,scientific				
	references , websites				

			Саши	a Nama	4			
				e Name				
			Phosphorus is	-				
			Cour	se Code	.2			
			Semeste	r / year	.3			
The second stage/second semester								
		date Prepa	ration this the des	cription	.4			
		·			024/4/4			
		shan	es the audience A					
		Silap	co the addiction A	My pre				
	/ 2	E \ marmala a u la a coma	Of color ( E ) records					
	( 3	.5) number nours	Study (5) numb	er Units	.6			
naı	ne respon	sible The decision	n Academic ( if mo					
			Mentions		l email			
			an Mohammed Kh					
		SI	uzan.mohammed@ເ	ıokerbala	.edu.iq			
			Goals	s The de	cision			
Introducing	students to	the plant cell	Goals Subje	ct Schol	arship			
and the phy	siology of m	etabolic	_		_			
processes wi	thin plants							
		Strat	egies education A	and lear	ning .9			
<u> </u>								
	that He	is requester able	on knowledge ce	II	The			
Vegetariar		•	on knowledge ce		The rategy			
Vegetariar		•	•	d st				
Vegetariar		•	d its functions And	d st				
Vegetariar		•	d its functions And	d st				
Vegetariar		•	d its functions And	d st				
Vegetariar		•	d its functions And . its parts	d st	rategy			
	nism And i	ts installation And	d its functions And . its parts structure Th	d st	rategy			
road	road	ts installation And	structure Tr	d st	ion .10			
	nism And i	ts installation And	structure Tr	d st	rategy			
road	road	name Unit or the	structure Tr	d st	ion .10 the week			
road Evaluation	road Learning	ts installation And	structure The Outputs Learning required	d st	ion .10			
road Evaluation	road Learning	name Unit or the topic  Plant cell -	structure Tr Outputs Learning required introduction in science Faslja the plant with a	d st	ion .10 the week			
road Evaluation Paper exam	road Learning	name Unit or the topic  Plant cell structure	structure The Outputs Learning required introduction in science Faslja the plant with a look Historical	d st s ne decis hours	ion .10 the week			
road Evaluation	road Learning	name Unit or the topic  Plant cell structure  Solutions: 2-	structure The Outputs Learning required introduction in science Faslja the plant with a look Historical The cell 2-	d st	ion .10 the week			
road Evaluation Paper exam	road Learning	name Unit or the topic  Plant cell structure  Solutions: 2- Preparing	structure Tr Outputs Learning required introduction in science Faslja the plant with a look Historical The cell 2- Botanical : its	d st s ne decis hours	ion .10 the week			
road Evaluation Paper exam	road Learning	name Unit or the topic  Plant cell structure  Solutions: 2- Preparing solutions	structure The Outputs Learning required introduction in science Faslja the plant with a look Historical The cell 2- Botanical: its composition And	d st s ne decis hours	ion .10 the week			
road Evaluation Paper exam	road Learning	name Unit or the topic  Plant cell structure  Solutions: 2- Preparing	structure Tr Outputs Learning required introduction in science Faslja the plant with a look Historical The cell 2- Botanical : its	d st s ne decis hours	ion .10 the week			
road Evaluation Paper exam	road Learning	name Unit or the topic  Plant cell structure  Solutions: 2- Preparing solutions mathematically . and practically Measurement 3-	structure Tr  Outputs Learning required introduction in science Faslja the plant with a look Historical The cell 2- Botanical: its composition And . jobs Its parts  Characteristics 3-	d st s ne decis hours	ion .10 the week			
road Evaluation Paper exam	road Learning Lectures Lectures	name Unit or the topic  Plant cell structure  Solutions: 2- Preparing solutions mathematically . and practically Measurement 3- solution:	structure The Outputs Learning required introduction in science Faslja the plant with a look Historical The cell 2-Botanical: its composition And . jobs Its parts  Characteristics 3-Physics Bio:	ne decis hours 5	ion .10 the week 1			
road Evaluation Paper exam	road Learning Lectures Lectures	name Unit or the topic  Plant cell structure  Solutions: 2- Preparing solutions mathematically . and practically Measurement 3- solution: Preparing the	structure The Outputs Learning required introduction in science Faslja the plant with a look Historical The cell 2-Botanical : its composition And . jobs Its parts  Characteristics 3-Physics Bio : solutions And	ne decis hours 5	ion .10 the week 1			
road Evaluation Paper exam	road Learning Lectures Lectures	name Unit or the topic  Plant cell structure  Solutions: 2- Preparing solutions mathematically . and practically Measurement 3- solution: Preparing the measuring	structure The Outputs Learning required introduction in science Faslja the plant with a look Historical The cell 2-Botanical: its composition And . jobs Its parts  Characteristics 3-Physics Bio: solutions And acidity And	ne decis hours 5	ion .10 the week 1			
road Evaluation Paper exam	road Learning Lectures Lectures	name Unit or the topic  Plant cell structure  Solutions: 2- Preparing solutions mathematically . and practically Measurement 3- solution: Preparing the	structure The Outputs Learning required introduction in science Faslja the plant with a look Historical The cell 2-Botanical : its composition And . jobs Its parts  Characteristics 3-Physics Bio : solutions And	ne decis hours 5	ion .10 the week 1			

		for different	organization And		
		. solutions	. energy Free		
Paper exam	Lectures	Buffer pH and4-	Systems 4-	5	4
-		Solution:	Colloidal : its		•
		Preparing it and	types And its		
		pH measuring the	. characteristics		
		different of			
		. solutions			
Paper exam	Lectures	Colloids: 5-	Spread And 5-	5	5
		Preparation of	. osmosis		
		hydrophilic and			
		hydrophobic			
		. colloids			
Paper exam	Lectures	Precipitation of 6-	Effort Watery 6-	5	6
		hydrophilic and	And accounts		
		hydrophobic	. Related with it		
		. colloids			
Paper exam	Lectures	Diffusion : 7-	Supplement 7-	5	7
		Carrying out	Accounts Effort		
		experiments on	Watery And		
		diffusion and the	osmosis And		
		factors affecting it	movement water		
		•	between cells		
			And drinking And he pressed		
			. Imbibing		
Paper exam	Lectures	Osmosis: 8-	. Permeability8-	5	8
i apoi oxam		Conducting	. I cillicabilityo-	5	0
		experiments			
		related to			
		. osmosis			
Paper exam	Lectures	Permeability: 9-	Absorption 9-	5	9
		experiments on	. water		
		. permeability			
Paper exam	Lectures	10- Estimation of	Juicer Rising10-	5	10
		osmotic the	). sap Rising)		
		potential of plant			
		. tissue			
Paper exam	Lectures	Estimation of 11-	Transpiration 11-	5	11
		. water potential	And dissection		
			the device The		
_			. gap		
Paper exam	Lectures	Imbibition: 12-	Juicer 12-	5	12
		Experiments	Phloem (sap		
		related to	). descending		
Danor over	Lectures	. imbibition	Action of Orall 142	_	
Paper exam	Lectures	Supplement 13-	Acting Optical13-	5	13
		the results of	•		
		imhihitia			
		imbibition			
		experiments and			

Paper exam	Lectures	Transpiration: 14-	Acting Optical14-	5	14
		Conducting			
		experiments to			
		measure			
		transpiration and			
		the force of			
		. transpiration			
Paper exam	Lectures	Exam15-	Acting Optical15-	5	15

evaluation 1					he decision .11
	Final theoretical exam	Final practical test	Daily theoretical tests	Practical quarterly tests	Theoretical semester tests
	%30	%20	%5	%20	%25
			Sources	Learning A	nd teaching .12
Kazem Ph	ysiology the p logy Plant - L	rter Ahmed 991) Basics plant C 1 , 2 and 3	the	( methodolo	ded Required ( logy that Found lome ( Sources )
Physiology the plant Difficulty  Faslja growth And develop the plant			that reco	mmend Wit ( Rep	nces Prevailing h it (Magazines ports ,scientific nces, websites

	Course name: Plant classification .1					
			Cour	se Code	2	
			Cours		TA201	
			Semeste			
		The	second stage, the			
			ation this the des			
				2	024/4/4	
		shap	es the audience A	vailable	.5	
				My pre		
	( 3.5	5) number hours	Study(75)numb	er Units	.6	
nai	mo rocnon	sible The decision	Acadomic / if me	oro from	nama	
IIai	ile respon	Sible The decision	Mentions			
	buraer.a@	Duokerbala.edu.iq	Brier Ahmed			
				s The de		
ide	ntification	Students	Goals Subje	ct Schol	arship	
	Importantl	y science				
	cation the	-				
his relation	onship Wit					
		The other	ogios oducation /	and loan	nina 0	
Strategies education And learning .9						
Methods	s diagnosis		9			
Methods	s diagnosis	s, date naming, Pa	9	d	The	
Methods	s diagnosis	s, date naming, Pa	atterns Tab the ol	d		
Methods	s diagnosis	s, date naming, Pa	atterns Tab the ol	d	The	
Methods	s diagnosis	s, date naming, Pa	atterns Tab the ol	d	The	
Methods	s diagnosis	s, date naming, Pa	atterns Tab the old ne hadith, Pattern	d s st	The rategy	
	-	s, date naming, Pa And th	atterns Tab the old ne hadith, Patterns structure Th	d s st	The rategy	
Methods road Evaluation	road Learning	s, date naming, Pa	atterns Tab the old ne hadith, Pattern	d s st	The rategy	
road	road	s, date naming, Pa And th name Unit or the	atterns Tab the old ne hadith, Patterns structure The Outputs	d s st	The rategy	
road	road	name Unit or the topic	structure The Outputs Learning required science Category	d s st	The rategy	
road Evaluation	road Learning	name Unit or the	structure The Outputs Learning required	d s st	The rategy ion .10 the week	
road Evaluation	road Learning	name Unit or the topic  study Appearances External For the paper Included,	structure The Outputs Learning required Science Category And its	d s st	The rategy ion .10 the week	
road Evaluation	road Learning	name Unit or the topic  study Appearances External For the paper Included, ranking Papers,	structure The Outputs Learning required Science Category And its	d s st	The rategy ion .10 the week	
road Evaluation	road Learning	name Unit or the topic  study Appearances External For the paper Included, ranking Papers, parts the paper sequel study	structure The Outputs Learning required science Category And its importance	d s st	The rategy ion .10 the week	
road Evaluation Exam Paper	road Learning Lectures	name Unit or the topic  study Appearances External For the paper Included, ranking Papers, parts the paper sequel study Appearances	structure The Outputs Learning required Science Category And its importance His relationship With science The	d s st	The rategy  ion .10 the week	
road Evaluation Exam Paper	road Learning Lectures	name Unit or the topic  study Appearances External For the paper Included, ranking Papers, parts the paper sequel study Appearances External For the paper sequel study Appearances External For the paper,	structure The Outputs Learning required science Category And its importance	d s st	The rategy  ion .10 the week	
road Evaluation Exam Paper	road Learning Lectures	name Unit or the topic  study Appearances External For the paper Included, ranking Papers, parts the paper sequel study Appearances External For the paper, appearance The	structure The Outputs Learning required Science Category And its importance His relationship With science The	d s st	The rategy  ion .10 the week	
road Evaluation Exam Paper	road Learning Lectures	name Unit or the topic  study Appearances External For the paper Included, ranking Papers, parts the paper sequel study Appearances External For the paper sequel study Appearances External For the paper,	structure The Outputs Learning required Science Category And its importance His relationship With science The	d s st	The rategy  ion .10 the week	

Evam Danor	Locturos	ctudy inctallation	Methods	
Exam Paper	Lectures	study installation Flower Included	diagnosis, date	3
		parts Flower And	naming, Patterns	
		types Flowers .	Tab the old And	
		Symmetry in	the hadith,	
		Flowers	Patterns	
Exam Paper	Lectures	study The stigma	the date	4
Ехапт арст	Lectures	in Ovary And	Evolutionary For	4
		types oocytes	your information	
		And arrange them	Category ,	
		7 and arrange arem	adjectives	
			Advanced And	
			primitive in Parts	
Exam Paper	Lectures	study	Methods search	5
Examin apoi	Lociaroo	Appearances	Classification :	
		External For	Classification	
		inflorescences	Numerical ( using	
		Included :	the key),	
		inflorescences Ltd	Category	
		And others		
		Limited		
Exam Paper	Lectures	study installation	Methods study	6
•		The fruits It	Unit Taxonomy	
		includes The	With all difference	
		fruits Simple And		
		the gathered And		
		double And the		
		fruits		
Exam Paper	Lectures	to explain How	study	7
		use key Families	Evolutionary For	
		Vegetarianism	groups	
		And the chart	Vegetarianism	
		Syphilis And the	And confirmation	
		equation The	on the plants	
		vase	Seed ( naked	
			) Seeds	
Exam Paper	Lectures	use the key To	Families The	8
		study family one	vase that to bear	
		from Selves	characteristics	
		Dicotyledons And	Primitive	
		family from		
		Selves Cotyledon		
	1 '	One	B.4	
Exam Paper	Lectures	Methods plural	Most important	9
		And save Plants :	Families that to	
		cabbage Models	bear	
		drying Models	characteristics	
		stabilizing	advanced	
Evam Dana:	Lootures	Samples	4h a l	
Exam Paper	Lectures	Identify on	the plants	10
		Herbariums	Environmental	
		Vegetarianism	Iraqi from where	
		Iraqi / Roads	Explore it And its	
1		save Models		

				1
		Vegetarianism	patterns	
		Iraqi	Taxonomy	
Exam Paper	Lectures	training Students	study Species	11
		on Diagnosis	Embroidery	
		Types	Environmental	
		Vegetarianism on	And chemical	
		road Grassland	And genetic	
		And references		
		And		
		encyclopedias		
Exam Paper	Lectures	study Families	Importance	12
		from Selves	Excavations	
		Dicotyledons on	Vegetarianism in	
		road the key	Studies	
		•	Evolutionary	
Exam Paper	Lectures	study Families	study	13
-		from Selves	Developments	
		Cotyledon One	Genetic And its	
		•	importance in	
			science Category	
Exam Paper	Lectures	get up requester	study Taxonomic	14
-		By collecting not	For the most	
		less than on	important	
		Thirty model	Families	
		Return to Thirty	Vegetarianism	
		family	Self Importance	
		Vegetarianism	agricultural in Iraq	
		Different		
Exam Paper	Lectures	study	the reviewer And	15
		Appearances	its importance in	
		External For the	science Category	
		paper Included ,	Especially	
		ranking Papers ,	Available Of	
		parts the paper	which in Iraq	
			•	

	evaluation The decision .11					
	Final theoretical exam	Final practical test	Daily theoretical tests	Practical quarterly tests	Theoretical semester tests	
	%30	%20	%5	%20	%25	
			Sources Learning And teaching .12			
book	science classi	fication the	Books decided Required (			
	plant			plant ( methodology that Found		
Classification the plant And			the reviewer Home ( Sources )			
	C	livision Bio				

Plant taxonomy	Books And references Prevailing
	that recommend With it (Magazines
	( Reports ,scientific
	Electronic references, websites

			Cours	e Name	.1
			Principles of fiel		
			Cours	se Code	.2
				F	CPT213
			Semeste	r / year	.3
		The se	econd stage, the	first ser	nester
		date Prepara	ntion this the des	cription	.4
				20	024/4/4
		shape	s the audience A	vailable	.5
		·		My pre	sence
	( 3.5 ) r	number hours S	tudy ( 75 ) numb	er Units	.6
	, ,		<u> </u>		
nan	ne responsib	le The decision	Academic ( if mo	ore from	name
			Mentions	ed)And	email
	Oda	y.h@uokerbala.ed	du.iq aggressiv	e Hamed	d Taha
			Goals	The de	cision
			Goals Subject	ct Schol	arship
		Strate	gies education A	nd lear	ning .9
					The
				st	rategy
					0,5
			structure Th	e decis	ion .10
road	road	name Unit or	Outputs	hours	the

road	road	name Unit or	Outputs	hours	the
Evaluation	Learning	the topic	Learning		week
			required		
Exams Daily	lecture	Crops field	date agriculture	5	1
And monthly	Synchronicity	-	Crops And its		
activities +	lecture +		habitats Original		
And duties	Video		-		
Exams Daily	lecture	Crops field	Crops field Its	5	2
And monthly	Synchronicity	-	importance And		
activities +	lecture +		divide it And		
And duties	Video		name it And he		
			taught		
Exams Daily	lecture	Crops field	Crops And a	5	3
And monthly	Synchronicity		branch		
activities +	lecture +				
And duties	Video				
Exams Daily	lecture	Crops field	growth plants	5	4
And monthly	Synchronicity		Crops Field 1		
activities +	lecture +				
And duties	Video				
Exams Daily	lecture	Crops field	Factors the	5	5
And monthly	Synchronicity		environment		

			A 11	1	
activities +	lecture +		And her		
And duties	Video		relationship With		
			growth Crops		
		0 6 11	field		
Exams Daily	lecture	Crops field	Factors the	5	6
And monthly	Synchronicity		environment		
activities +	lecture +		And her		
And duties	Video		relationship With		
			growth Crops		
			field		
Exams Daily	lecture	Crops field	Installation	5	7
And monthly	Synchronicity		Biological (		
activities +	lecture +		biological )		
And duties	Video		. nitrogen		
Exams Daily	lecture	Crops field	Lands Affected	5	8
And monthly	Synchronicity	·	With salts		•
activities +	lecture +				
And duties	Video				
Exams Daily	lecture	Crops field	Operations to	5	9
And monthly	Synchronicity	2.352	equip the earth		,
activities +	lecture +		5 qap a5 caa		
And duties	Video				
Exams Daily	lecture	Crops field	Roads the	5	10
And monthly	Synchronicity	Oropo noid	public To		10
activities +	lecture +		cultivate		
And duties	Video		Cultivate		
Exams Daily	lecture	Crops field	Operations	5	11
And monthly	Synchronicity	Crops neid	service The crop	)	11
activities +	lecture +		-		
And duties	Video		after Agriculture		
And duties	video		patching and )		
			thinning). And		
Evers Deily	la atrus	Onene field	( the hoeing		
Exams Daily	lecture	Crops field	irrigation Crops	5	12
And monthly	Synchronicity		field And		
activities +	lecture +		exchange		
And duties	Video	0 5 1 1	Agricultural	_	
Exams Daily	lecture	Crops field	fertilization	5	13
And monthly	Synchronicity		. Crops The field		
activities +	lecture +				
And duties	Video				
Exams Daily	lecture	Crops field	Weeds And its	5	14
And monthly	Synchronicity		damage And		
activities +	lecture +		resist it		
And duties	Video				
Exams Daily	lecture	Crops field	Operations	5	15
And monthly	Synchronicity		harvest And the		
activities +	lecture +		lesson And		
And duties	Video		storage For		
			crops field		
			•		
1					

evaluation The decision .11						
Theoretical semester exams (30%) - Practical semester exams (15%) -						
Daily practical exams (5%) - P	ractical final exam (20%) - Theoretical					
	.(30%) final exam					
	Sources Learning And teaching .12					
basics Crops field	Books decided Required (					
	( methodology that Found					
book basics production Crops	the reviewer Home ( Sources )					
field						
	Books And references Prevailing					
that recommend With it (Magazines						
	( Reports ,scientific					
	Electronic references, websites					

			0	- 11					
	Course Name .1								
	Principles of microbiology								
	Course Code .2								
Semester / year .3									
	First semester 2023-2024								
		date Prepa	ration this the des	cription	.4				
		•		•					
		shar	es the audience A	vailable	-5				
				My pre					
n	umbar bau	re Acadomic ( to	otal ) number Units						
11	ullibel liou	iis Academic ( to		, ,	.0				
non	NO 4000000	sible The decision	hours and 3.5		nomo				
nan	ne respons	sible The decision	on Academic ( if mo						
			Mentionse		emaii				
		A.M.D. Mon	sin Abdul Ali Mohs						
			muhsin.muhsin@u	<u>okerbala</u>	<u>.edu.iq</u>				
			millimeter. Zahraa	Jawad I	Kazem				
			Goals	The de	cision				
Identify	the main g	roups of	Goals Subject	t Schol	arship				
microorgan	isms and t	heir role							
	i	n nature							
		Stra	tegies education A	nd lear	nina .9				
Teaching st	tudents the		croorganisms, their		The				
_			their effects on the		rategy				
	•	•	plation, growth, and		lategy				
	•		the main groups of						
		•	• •						
	_	·	n, distribution, and						
			nomic importance						
and the	eir relation	snip with each o	ther and with other						
			living organisms	5					
			structure Th	e decis	ion .10				
road	road	name Unit or	Outputs Learning	hours	the				
Evaluation	Learning	the topic	required		week				
Daily	Lectures	Introduction	Definition of	5	1				
exam		to	microbiology, the						
		microbiology	history of its						
			development,						
			theories that						
			explain the						
			origin of life, and						
			some scientists						
			and their roles						

D-11	1 1	84'	The	_	_
Daily	Lectures	Microbiology	The main	5	2
exam		groups	collections of		
			biology ,		
			microscopy, and		
			the sciences		
			specialized in		
			their study and		
			some scientific		
			terms		
Daily	Lectures	Bacteria	Bacteria, their	5	3
exam		Duotona	spread,	,	•
CAGIII			distribution and		
			forms		
Daily	Lectures	Cell wall,	Non-living	5	4
	Lectures	•	_	5	4
exam		flagella, cilia,	components of		
		spores, and	the bacterial		
		capsules	cell and their		
			structure		
Daily	Lectures	Cytoplasm	The living	5	5
exam		and its	components of	3	•
GAAIII		contents	the bacterial cell		
		contents	and their growth		
			methods		
Deibe	Lastunas	Diffusion of			
Daily	Lectures	Diffusion of	Mechanism of	5	6
exam		substances	transport of		
		and their	substances		
		passage	across		
		through the	cytoplasmic		
		cytoplasmic	membranes		
		membrane	Methods of		
		membrane			
			counting		
			bacterial cells		
			and their		
			economic		
			importance		
		First month	First month	5	7
		exam	exam	3	,
Da!le	1			_	
Daily	Lectures	Fungi	Fungi described	5	8
exam			by their		
		<b>D.</b>	composition		
Daily	Lectures	Biological	Nutrition and	5	9
exam		activities of	physiology of		
		fungi	fungi		
Daily	Lectures	Major groups	Classification of	5	10
exam		of fungi	fungi		
-	Locturac		Characteristics	-	11
Daily	Lectures	Taxonomic		5	11
exam		traits	of fungi and		
			their economic		
			importance		
Daily	Lectures	Algae	Description of	5	12
exam		5 5	algae:		
· · · · · · · · · · · · · · · · · · ·			aiga <del>c</del> .		

			movement,		
			nutrition, and		
			reproduction		
			Division of		
			algae, its		
			advantages and		
			economic		
			importance		
		Second	Second month	5	13
		month exam	exam		
Daily	Lectures	Viruses	Viruses, their	5	14
exam			types, structure,		
			life cycle, and		
			classification		
Daily	Lectures	Pathogenesis	The relationship	5	15
exam		_	between		
			microorganisms		
			and humans		

## evaluation The decision .11

-Practical quarterly exams 20% -Theoretical semester exams 20% Final practical - Daily theoretical tests 10% - final theoretical test 30% exam 20%

	Sources Learning .12
	And teaching
Nizam, Adnan Ahmed Ali. 2008.	Books decided
Microorganism Biology. Theoretical part.	Required (
Damascus University. Faculty of Science. 432	methodology that
pages	( Found
Definition of Microbiology	the reviewer Home (
	( Sources
http://en.wikipedia.org/wiki/Microbiology#Branches	Books And
	references Prevailing
	that recommend With
	it (Magazines
	( Reports ,scientific
Scientific researcher website	Electronic references,
	websites

Course	Name .1
•	of Statistics
Course	Code .2
Semester /	
Second semeste	er/2023-2023
date Preparation this the descr	iption .4
shapes the audience Ava	ilable .5
N	My presence
number hours Academic ( total ) number Units (	total) .6
hours	s, 3.5 units 5
name responsible The decision Academic ( if more	e from name
	Mentionsed
ali.nazem@uokerbala.edu.iq: Name : Professor Ali Nazim Fa	
Goals T	he decision
Students gain experience, • Goals Subject	
skills, and the ability to deal	Ocholarship
with and analyze data	
<u> </u>	
Dealing with various statistical • .methods	
Analyze agricultural data, make •	
decisions and communicate	
effectively	
Strategies education And	
:Focus on agricultural applications .1	The
Real-life examples: Use real-life examples and case	strategy
studies from the field of agriculture to illustrate .statistical concepts	
Field visits: Organizing field visits to farms and	
agricultural research centers to introduce students to	
practical applications of statistics.	
:Use of technology .2	
Statistical software: Teach students how to use common	
statistical software,	
Simulation: Use simulation software to represent statistical phenomena and enhance understanding of	
concepts.	
Electronic learning resources: Providing electronic	
learning resources, such as videos and interactive	
,exercises	
:Active learning .3	
Group Discussions: Encourage students to discuss	
statistical concepts and solve problems together.	

:Continuous evaluation .4
Assignments and Quizzes: Assess students'
understanding of statistical concepts through
.assignments and quizzes
Linking statistics to other courses .5

## structure The decision .10

Structure The decision .10					
the	hours	Outputs	name Unit or	road	road
week		Learning	the topic	Learning	Evaluation
		required			
1	5	Understand	Introduction	Lectures	Daily
		the basic	and definition		paper
		principles of			exam
		statistics			
2	5	Learn	Statistical	Lectures	Daily
		statistical	symbols		paper
		symbols			exam
3	5	Providing	Data display	Exercises	solving
		students with	and frequency		equations
		the ability to	distribution		
		display data			
		and frequency			
		distribution			
4	5	Students'	Mediation	Exercises	solving
		understanding	measures		equations
		and			
		assimilation of			
		mediation			
		scales			
5	5	Students'	Measures of	Exercises	solving
		knowledge of	dispersion		equations
		dispersion			
		measures and			
		the ability to			
		apply them	411 1112		<u> </u>
6	5	Students'	Compatibility	Exercises	solving
		understanding	and exchange		equations
		of the			
		principles of			
		compatibility			
	_	and exchange	Mandlalii		
7	5	Monthly exam	Monthly exam		

solving	Exercises	Binomial	Ability to solve	5	8
equations		distribution	applied		J
5 40.00.00		0.10 0.110 0.010 1.1	problems of		
			binomial		
			distribution		
solving	Exercises	Normal	Ability to solve	5	9
equations		distribution	applied normal		3
oquation:			distribution		
			problems		
solving	Exercises	Hypothesis	Ability to solve	5	10
equations	EXCICIOO	Z testing	applied	,	10
oquationo		2 tooting	problems and		
			hypotheses test		
solving	Exercises	distributiont	Ability to solve	5	11
equations	LACICISCS	distributiont	t- applied	3	11
equations			distribution		
1	<b>F</b>	1. 4 1. 41	problems	_	
solving	Exercises	distributionF	Ability to solve	5	12
equations			F applied		
			distribution		
			problems		
solving	Exercises	Chi- square	Ability to solve	5	13
equations		distribution	applied chi-		
			square		
			distribution		
			problems		
solving	Exercises	General	General	5	14
equations		Review	Review		
		Monthly exam		5	15

evaluation The decision .11						
Theoretical semester exams (30%) - Practical semester exams (15%) -						
Daily practical exams (5%) - Prac	tical final exam (20%) - Theoretical					
	.(30%) final exam					
	Sources Learning And .12					
	teaching					
Al-Rawi, Khashi Mahmoud. 1989.	Books decided Required (					
Introduction to statistics. College	( methodology that Found					
.of Agriculture - University of Mosul						
Hoshmand , R. (2017). Statistical	the reviewer Home ( Sources )					
methods for environmental and						
agricultural sciences . CRC press.						

Rangaswamy , R. (1995). A text book of agricultural statistics . new age international.	Books And references Prevailing that recommend With it Reports ,Magazines scientific)
https://www.realityworks.com/blog/10- online-resources-for-agriculture- classrooms/?v=560e51228bc1	Electronic references, websites

	Cauraa Nama			
Δ.	Course Name			
Ag	ricultural biotechnology Course Code			
	Course Cour	÷ .2		
	Semester / year	.3		
The se	cond stage / second se	mester		
date Prepara	tion this the descriptior	า .4		
	20	24/24/4		
shape:	s the audience Available	e .5		
		esence		
number hours Academic ( tota	•	<u> </u>		
	5 :Number of units hour 75			
name responsible The decision	Mentionsed ) And			
aqeel.n@uokerbala.edu.uk Prof. [	r. Aqeel Nazzal Berber	a Cilian		
aqeemi@dokerbala.edd.dk 1101. E	Goals The de	ecision		
Introducing students to the principles and	Goals Subject Scho			
methods of biotechnology and transferring		р		
their applications to various agricultural				
sciences, including methods for developing				
plant varieties that are resistant to diseases				
and insects that attack agricultural crops				
21.1				
Strate	gies education And lear	_		
Distanta da su sissa ta sul assa da	a von danstan din a and	The		
Biotechnology aims to enhance th	9	trategy		
application of the scientific and technical fo				
: of agricultural biotechnology . Th	s can be achieved by			
Providing comprehensive educational comprehensive	ırricula: designing 1			
educational curricula that include theoretical	3 3			
to enhance students' understanding of th	·			
3	•			
. applications of agrico	litural biotechnology			
Adopting interactive methods: Encouragi	ng discussion and 2			
interaction between students and tea				
. exchange of knowledge and its application to practical contexts				
. exchange of knowledge and its application	to practical contexts			
Providing practical application opportu	inities: Organizing 3.			
practical activities such as laboratories and r				
enable students to experience a				
·	technology in reality			
. Dic	recently in reality			

			structure Th	e decisi	on .10
road	road	name Unit or the	Outputs	hours	the
Evaluatio	Learning	topic	Learning		week
n			required		
Practical	theoretica	Agricultural	to	5	1
daily	1	biotechnology	The understand nature of		
tests	practical		biotechnology,		
Tests are			the history of		
quarterly			biotechnology,		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			and the five		
			historical stages		
			that science has		
			passed through		
_					
Practical	theoretica	The importance	to	5	2
daily	I	of	Th understand		
tests	practical	biotechnology	e importance of		
Tests are	-		biotechnology and its		
quarterly			relationship to		
. ,			the fields of life		
			. science		
Practical	theoretica	Biocell	Plant cells and	5	3
daily	1		their types, the		
tests	practical		importance of		
Tests are	practical		plants for		
quarterly			biotechnology, somatic cell		
quarterry			,N) cultures (2		
			germ cell		
			,(N) cultures		
			protoplast		
			cultures		
Practical	theoretica	Tissue culture	Tissue	5	4
daily	1		culture, benefits		
tests	practical		of tissue		
Tests are	•		culture,		
quarterly			components of the environment		
4			used in tissue		
			culture,		
			conditions for		
			successful		
			tissue culture,		
			advantages of		
Droctical	theoretics	Mioroorgania	. this method Animal cells	_	
Practical	theoretica	Microorganism	Animal cells and their	5	5
daily	I	s and their role	importance in		
tests	practical	in	biotechnology,		
		biotechnology	the importance		

T			C1 · 1 · 1		
Tests are			of biological		
quarterly			pesticides		
			Bioinsecticides		
			( Cancer cells		
			,Hela cells)		
			microorganisms and their role in		
			biotechnology		
Practical	theoretica	Genetic	Genetic	5	6
	lileoretica	mutation	mutations, types	Э	О
daily	I	illutation	of genetic		
tests	practical		mutations, the		
Tests are			origin and		
quarterly			historical		
			development of		
			genetic		
			. engineering		
Practical	theoretica	Genetic	Genetic	5	7
daily	1	Engineering	engineering, a		
tests	practical		historical view,		
	practical		gene color,		
Tests are			genetic		
quarterly			material,		
			structure of		
			nucleic acids,		
			rules involved		
			in the structure		
			,DNA of bonds found in		
			the DNA		
			molecule.		
Practical	theoretica	Replication	a base	5	8
	licoretica	Replication	In Charaguff	,	0
daily			the sequence of		
tests	practical		nitrogenous		
Tests are			bases, a double		
quarterly			helix		
			Doublehelix,		
			DNA		
			, replication		
			conserativ semi		
			, the replication		
			mechanism of		
			DNA		
5 (: 1	41 41	<b>0</b> 1 '	. replication		_
Practical	theoretica	Cloning	The mechanism	5	9
daily	I		of DNA		
tests	practical		replication		
Tests are	•		outside the		
quarterly			body of an organism		
944110119			Invitro		
			Repetition		
			within the body		
			winin the body	l .	

				1	
			of an organism		
			,inviro		
			Synthesis of		
			DNA strands		
			inside living		
			cells, Okazaki		
			pieces		
			Okazakai		
			Fregment		
Practical	theoretica	Anatomy of a	Anatomy of	5	10
daily	1	gene	genes, structural		
_		90.10	genes		
tests	practical				
Tests are					
quarterly					
Practical	theoretica	Gene structure	Gene	5	11
daily	1		organization		
			and structure in		
tests	practical		eukaryotes,		
Tests are			in Promoters		
quarterly			prokaryotes,		
'			Catalysts in		
			eukaryotes		
Practical	theoretica	Translation	Showing	5	12
	incorcioa	Translation	gene expression	,	12
daily	1		showing the )		
tests	practical		trait), protein		
Tests are			synthesis, RNA		
quarterly			the, formation		
, , , , ,			three types of		
			,RNA m-RNA		
			r-RNA ,t-RNA		
			protein ,		
			synthesis in the		
			cytoplasm via		
			. ribosomes		
Practical	theoretica	Vectors	Biology	5	13
	incorciica	VCCtOIS	Eng . Genetic	3	13
daily	'		Vectors and		
tests	practical		types, their		
Tests are			plasmids,		
quarterly			bacterial phage		
-,			vectors,		
			viruses,		
			Ti. coronavirus		
Practical	theoretica	Genetic cloning	Dealing with	5	14
	i	Conocio dioming	the eukaryotic	3	74
daily	1		nucleus and		
tests	practical		how to carry		
Tests are			out the process		
quarterly			of genetic		
4			cloning,		
			creating		
			transgenic		
			uanogenie		

			animals and		
			, plants		
			delivering		
			synthesized		
			to cells, DNA		
			transformation		
			and		
			transfection.		
Practical	theoretica	Genetically	Transgenic	5	15
daily	i	modified plants	plants, plants		
		, <b>,</b>	that have been		
tests	practical		genetically		
Tests are			modified in the		
quarterly			field of plant		
'			protection, are		
			resistant to		
			insects after		
			transferring a		
			BT, gene		
			glyphosate-		
			resistant plants,		
			companies that		
			deal with		
			biotechnology,		
			the importance		
			of genetically		
			modified plants		
			and the dangers		
			_		
			. of these plants		

	evaluation The decision .11
biotechnology is an essential	part of sustainable and efficient agricultural
	development
Muhammad Saeed Al-Haffar (2013) Biotechnology and Genetic Engineering, Dar Al-Fikr	Sources Learning And teaching .12
Muhammad Saeed Al-Haffar (2013)	Books decided Required (
Biotechnology and Genetic Engineering, Dar Al-Fikr	( methodology that Found
	the reviewer Home ( Sources )
	Books And references Prevailing
	that recommend With it (Magazines
	( Reports ,scientific
	Electronic references, websites

		D I
		Beekeeping :Course name .1
		Caumaa Cada
		Course Code .2
		Semester / year .3
		Second semester/2023-2023
	date Prepa	aration this the description .4
	shap	pes the audience Available .5
		My presence
number hours	Academic ( to	otal ) number Units ( total ) .6
		hours, 3.5 units 5
name responsible The de	cision Acade	mic ( if more from name Mention
		and email (
lin	a.q@uokerbal	a.edu.iq M.D. Lina Qassem Eidan
		Goals The decision
		Goals Subject Scholarship
Providing the student	•	,
with the basic skills for		
raising bees using		
. modern methods		
Learn about the most	•	
important honey bee		
products and how to		
. benefit from them		
Identifying the life of	•	
bees and the most		
important morphological		
and physiological		
changes in members of		
. the honey bee sect		
Requirements for	•	
. establishing apiaries		
Identify the most	•	
important pastures and		
how to preserve and		
. develop them		
Identify the most	•	
important honey bee	-	
diseases, diagnose		
them, and how to		
.combat them		
.combat trieffi	Stro	tegies education And learning .9
	Sua	itegies education And leaning .9

.Gaining experience, skill, and ability to deal with bees-
Gaining the ability to distinguish between methods of -
solving beekeeping problems.

- .Dealing with beekeeping theoretically and practically-Training on the basics of beekeeping using modern -.methods
  - .Training on the necessary tools for beekeeping .Training in diagnosing bee diseases and pests -

#### structure The decision .10

The

strategy

Structure The decision .10					
road	road	name Unit or the	Outputs Learning	hour	the
Evaluation	Learning	topic	required	s	week
Daily exam	Lecture s	The economic importance of beekeeping	Statement of the economic importance of beekeeping	5	1
Daily exam	Lecture s	Types of honey bees and their breeds	Distinguish between honey bee types and breeds	5	2
Daily exam	Lecture s	The external appearance of bees	Identify the external appearance of bees	5	3
Daily exam	Lecture s	Internal appearance of bees	Knowledge of the functions of the internal organs of bees	5	4
Monthly exam					
Daily exam	Lecture s	Work of beekeepers	Learn about the work of beekeepers	5	5
Daily exam	Lecture s	The life of bee individuals	Understanding the life cycle of bees	5	6
Daily exam	Lecture s	Establishing and managing apiaries	How to establish and manage apiaries	5	7
Daily exam	Lecture s	Bee products	Learn about bee products	5	8
Monthly exam					

Daily exam	Lecture s	Bee pests	Identify bee pests and how to combat them	5	9
Daily exam	Lecture s	False mothers, expulsion, and theft	Identifying false mothers and expulsions Theft and how to get rid of it	5	11
Daily exam	Lecture s	Honey production and preservatio n	How is honey produced and ?preserved	5	12

	evaluation The decision .11					
Theoretical semester exams (30%) - Practical semester exams (15%) -						
Daily practical exams (5%) - P	ractical final exam (20%) - Theoretical					
	.(30%) final exam					
	Sources Learning And teaching .12					
Beekeeping / Abdul Baqi Al-	Books decided Required (					
Omari	( methodology that Found					
Encyclopedia of bees	the reviewer Home ( Sources )					
Beekeeping is a science and a	Books And references Prevailing					
hobby	that recommend With it (Magazines					
	( Reports ,scientific					
	Electronic references, websites					

:code	Subject: Biochem		third lev	rel	Mandatory (essential)
Number of units: 3.5	Practica	I hours: 3	Theoret hours: 2		Planned teaching hours
	o the science of their functions		- the compon	ents of the	Description of the curriculum
	ne student to ch organic compo			oiological	The goal of teaching the curriculum
	nould be <mark>able</mark> to ortance of orga				Learning Outcomes
Bioche <mark>mistry -</mark> Daoudi	Part One (1) ar	nd (2). Writter	by Dr. Ali Ha	ssan Al-	Methodical book
Final theoretical exam	Final practical test	Daily theoretical tests	Practical quarterly tests	Theoreti cal semeste r tests	Semester grades
%30	%20	%5	%20	%25	

## Threads

Numb er Hours	The	Numb er Hours	Article Theory	The week
3	Specific detections of monosaccharides (general detection - detection of reducing properties - reducing power - distinction between aldehyde reducing sugars) And		Introduction to the science of biochemistry - the components of the living cell and their functions	

	,			1
	ketosis - pentagonal and hexagonal.			
	0 ': ': '			
3	Specific disclosures about disaccharides (general disclosure -	2	Carbohydrates - their definition -	
	distinguishing between		their importance - their types - monosaccharides, )	
	monosaccharides and disaccharides		polysaccharides, polysaccharides	
	distinguishing between reducing -		)	
	and non- reducing disaccharides)		,	
3	Specific tests for polysaccharides	2	Monosaccharides - Similarities in	
	general detection - reductive tests - )		monosaccharides - Derivatives of	3
	iodine test)		monosaccharides - The cyclic	3
			structure of sugars.	
3	Hydrolysis of starch. Detection of	2	Low polysaccharides - their	4
	starch degradation products.		reduced and non-reduced types	
3	First month exam - a practical test to	2	Polysaccharides - homogeneous	5
	detect unknown sugar		and heterogeneous types	
3	General tests for proteins	2	First month exam	6
3	Detection of the presence of sulfur	2	Fats - their definition - their	
	amino acids in proteins		importance - fatty acids - their	7
			sections - their structures - their	
			interactions - geometric similarities of fatty acids	
3	Detection of aromatic amino acids in	2	Sections of fats - simple fats - their	
	proteins	_	types (oils, fats and waxes) - their	8
	'		compositions - fat constants	
3	Detection of basic amino acids in	2	Complex and derived fats - their	
	proteins		types - their compositions	9
3	Precipitation of proteins -	2	Amino acids - their types - their	
	Denaturation or coagulation of		structures - properties of amino	10
	proteins		acids - their interactions	
3	Detection of unknown proteins using	2	Peptides - proteins - their	
	previous tests/second month exam		definition - their types - levels of	11
	Fot toots (distinguishing between		protein synthesis - denaturation	
3	Fat tests (distinguishing between saturated and unsaturated fatty acids	2	Second month exam	12
	copper acetate test - iodine test)			12
3	Emulsification of oils - saponification	2	Nucleic acids - their importance -	
	of fats	4	nucleotides - their functions -	13
	37 14.0		structure - types of nucleic acids	
3	Detection of fat rancidity	2	Enzymes - their definition - the	
			mechanism of enzyme action -	
			their classification - inactive and	14
			active enzymes - factors affecting	17
			the speed of the enzymatic	
	Final avana		reaction.	
3	Final exam	2	Exam	15
				_

	Desig	n and analysis of e	experiments :Cour	se name	.1
			Cour	se Code	.2
			Semeste		.3
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		date Prepa	aration this the des	-	
					23/2/12
	shapes the audience Available .5				
My presence					
	number h	ours Academic ( to	•	<u> </u>	
hours and 3.5 units 5					
name responsi	ble The de	cision Academic (	if more from name		-
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				o Marza	
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		_	Goals Subje		
			tegies education A		
_	_	ld visits to fields a	_		The
familiarize stud		scientific applicati	=		rategy
		designing and ana			
	_	real-life examples			
illustrate cond	epts for th	e design and analy	•		
A ativa Laam	dan Crau	n Diaguasiana Ena	cours	-	
Active Learn		p Discussions End			
Continuo		discuss and solve nent: Assignments			ļ
		ding of the materia			
		nents through ass			
-	•	signing and analyz	_		
Linking the dur	ation of ac-	orgining and analyz	other course		
			structure T		ion 10
road Evaluation	road	name Unit or the	Outputs	hours	the
	Learning	topic	Learning		week

Structure The decision 110					
road Evaluation	road	name Unit or the	Outputs	hours	the
	Learning	topic	Learning		week
		·	required		
Paper and daily	Lectures	An overview of	The student's	5	1
testing		statistical terms	understanding of		
		and symbols	the historical		
			overview of		
			statistics, the		
			definition of		
			statistics, and the		
			division of		
			statistics		

Department deller	Lootures	Evamples of	Student		
Paper and daily	Lectures	Examples of concentration	understanding of	5	2
testing		metrics	measures of		
		111041100	central tendency.		
			Measures of		
			centrality		
Paper and daily	Lectures	Examples of	Student	5	3
testing		measures of	understanding of		
		dispersion	measures of		
			dispersion		
Paper and daily	Lectures	Examples of	Student ·	5	4
testing		hypothesis testing Examples of the	understanding of		
		t- test uses of the	hypothesis testing, statistical errors,		
		in testing statistical	hypothesis testing		
		hypotheses	- t		
Paper and daily	Lectures	, pour coo	Student	5	5
testing			understanding of		
			the chi- square		
			test		
Paper and daily	Lectures	Examples of the	The student's	5	6
testing		uses of the chi-	knowledge of		
		square test in	general concepts		
		testing statistical	and definitions in		
		hypotheses	designing and analyzing		
			experiments and		
			types of		
			agricultural		
			experiments		
Paper and daily	Lectures	Examples of	Identify the most	5	7
testing		analysis of	important		
		variance	features of the		
			completely		
			randomized		
Donor and daily	Looturas	Evamples of	design	_	
Paper and daily	Lectures	Examples of complete	Student ·	5	8
testing		randomized	understanding of the average test		
		design	uie average lest		
Paper and daily	Lectures	Examples of the	The student's ·	5	9
testing		least significant	knowledge of		
		difference test and	completely		
		the Duncan test	randomized block		
			design		
Paper and daily	Lectures	Examples of	Student	5	10
testing		completely	understanding of		
		randomized block	the design of the		
Danana dalah	14	design	Latin square	_	
Paper and daily	Lectures	Examples of ·	Identifying global	5	11
testing		global experiments	experiences a		
		according to a			
		completely randomized			
		ranuonnzeu			

		design. Examples of global experiments according to a completely randomized block design. Examples of calculating least significant difference test values			
Paper and daily testing	Lectures	Examples of global experiments according to a completely randomized design. Examples of global experiments according to a completely randomized block design. Examples of calculating least significant difference test values	Global experiments	5	12
Paper and daily testing	Lectures	-Examples of split plot design according to a completely randomized design. Examples of split -plot design according to a completely randomized block design. Examples of calculating least significant difference test .values	The student's knowledge of the design of split panels	5	13
Paper and daily testing	Lectures	-Examples of split plot design according to a completely randomized design. Examples of split -plot design according to a completely randomized block design. Examples of calculating	Split panel design	5	14

		least significant difference test .values			
Paper and daily testing	Lectures	Examples of correlation and simple linear regression	recognition and simple linear regression	5	15

	evaluation The decision .11
Theoretical semester exams (25%) - Pra	ctical semester exams (20%) - Daily
(30%) exams (5%) - Practical final	exam (20%) - Theoretical final exam
	Sources Learning And .12
	teaching
Introduction to statistics Dr. Submissive	Books decided Required (
Mahmoud Al-Rawi. University presses Mosul,	( methodology that Found
second edition, 2000. Principles of Statistics	
Khashia Al-Rawi, Naeem Thani Al-	
Muhammad, Muayyad Ahmed Al-Younis,	
Walid Khaled Al-Marani Design and analysis	
of agricultural experiments Khashia Al-Rawi	
and Abdul Aziz Khalaf	
	the reviewer Home ( Sources )
Arab Plant Protection Journal - Karbala	Books And references Prevailing
Journal of Agricultural Sciences	that recommend With it
	( Reports ,Magazines scientific)
	Electronic references, websites

			Course	e Name	_1	
			Environmental s			
	Course Code .2					
			Semester	r / vear	.3	
		date Preparat	ion this the desc	cription	.4	
		shapes	the audience Av	/ailable	.5	
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n	umber hours	Academic ( total	) number Units			
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nar	ne responsib	le The decision A	cademic ( if mo	re from	name	
			Mentionse			
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			Goals	The de	cision	
Providir	ng students with	experience in appli		Goals S		
	-	l environmental the			-	
Providing		ns with specialized .	•	, , , , , , , , , , , , , , , , , , ,		
	•	cadr				
Prepari	ng cadres with	high experience in .	-3			
environmenta	l sciences and	experience in knowi	ng			
		high-tech devic	es			
Provid	ing students wit	h scientific . 4-				
techniques in	using devices	and equipment				
	e used in their					
	and study . 5-					
	new in environm					
and keep pac	ce with scientific	•				
		. in this field			_	
		Strateg	ies education A	nd lear	ning .9	
					The	
Demons	trations using di	agrams, pictures ar	nd educational films	s st	rategy	
	3	•	ractive discussion•		٠٠٠	
			self education•			
		E- learning , s	cientific seminars•			
			structure The	e decis	ion .10	
road	road	name Unit or	Outputs	hours	the	
Evaluation	Learning	the topic	Learning		week	
		•	required			
Daily and	Synchronous	Introduction,	Important	4	1	
monthly	+ lecture	definition	terms of			
+ exams	video lecture		origin,			

	I	· —· · · · · · · · · · · · · · · · · ·		1	
activities		The environment	relations		
and		and its characteristics			
assignments		Its relationship			
		with other			
		.sciences			
Daily and	Synchronous	branches of	Classification		2
monthly	+ lecture	ecology,	by		2
+ exams	video lecture	The aquatic	Many		
activities	video lecture	environment	standards		
activities		and			
		Classification,			
assignments		terrestrial			
		environment			
		classification			
Daily and	Synchronous	Ecosystem	Living and		3
monthly	+ lecture	and its	non-living		
+ exams	video lecture	components	factors		
activities					
and					
assignments					
Daily and	Synchronous	Environmental	Leibeg law and		4
monthly	+ lecture	determinants	Shelford laws +		
+ exams	video lecture	and	tolerance laws		
activities		endurance			
and		laws			
assignments					
Daily and	Synchronous	Abiotic	Temperature,		5
monthly	+ lecture	factors	light, water,		
+ exams	video lecture	determining	biosalts , gasses,		
activities		the	nutrients etc		
and		environment			
assignments					
Daily and	Synchronous	Food chain	The flow of		6
monthly	+ lecture	and food	energy in the		
+ exams	video lecture	chain	ecosystem		
activities					
and					
assignments					
		Exam			7
Daily and	Synchronous	Productivity	Types of		8
monthly	+ lecture	and	ecological		
+ exams	video lecture	measurement	pyramids		
activities		methods,	Types of		
and		Ecological	productivity		
assignments		pyramids	methods		
	ı		1		

Daily and	Synchronous	Gaseous and	Water cycle	9
monthly	+ lecture	sedimentary	Carbon cycle	
+ exams	video lecture	cycles	Nitrogen cycle	
activities		_	Phosphorus cycle	
and				
assignments				
Daily and	Synchronous	Population	Population	10
monthly	+ lecture	and	density	
+ exams	video lecture	population	and dynamic	
activities		distribution	+distribution	
and			Survival	
assignments			curves	
Daily and	Synchronous	Communities,	Structure of	11
monthly	+ lecture	classification	societies	
+ exams	video lecture	and analysis		
activities				
and				
assignments				
Daily and	Synchronous	Ecosystem	River Lakes	12
monthly	+ lecture	diversity:	Properties and	
+ exams	video lecture	freshwater	structures	
activities		ecosystems		
and				
assignments				
Daily and	Synchronous	Ecosystem	Forests	13
monthly	+ lecture	Diversity:	Pastures	
+ exams	video lecture	Land	Deserts	
activities		ecosystem	Mountains Properties	
and			and	
assignments			structures	
Daily and	Synchronous	Ecological	Ecological	14
monthly	+ lecture	succession	succession	
+ exams	video lecture		is the term	
activities			and	
and			development	
assignments			of	
			ecosystems	
			other than land and	
			water	
		Exam	Water	15
		-/-		

Theoretical semester exams (30%) - Practical semester exams (15%) -					
Dally practical exams (5%) - Pi	ractical final exam (20%) - Theoretical				
	.(30%) final exam				
	Sources Learning And teaching .12				
Basics of environmental	Books decided Required (				
science, Prof. Dr. Bassem Al-	( methodology that Found				
Khafaji					
Foundations of environmental					
science IP ODM					
Principle of ecology	the reviewer Home ( Sources )				
	Books And references Prevailing				
	that recommend With it (Magazines				
	( Reports ,scientific				
	Electronic references, websites				

	Course		.1		
		netics			
	Course	Code	.2		
	Semester /	year	.3		
	First semeste				
date Prena	ration this the descr	intion	4		
uato i Topa	Tation tino tino accor	iption			
ahau	sa tha audianaa Ava	ilabla	_		
Snap	es the audience Ava				
My presence					
number hours Academic ( to	otal) number Units (	total)	.6		
	hours, 3.5 u				
name responsible The decision Acade	mic(if more from na	me Me	ntion		
		and er	nail (		
adnan.lahuf@uokerbala.edu.ig	Mr. Dr. Adnan Abdu	ıl Jalil L	ahuf		
	Goals T	The dec	ision		
The course aims to present the basics	Goals Subject				
of classical genetics, modern	Godio Gdbjoot	Jonola	.op		
molecular genetics, and genes and					
their role in transmitting genetic					
traits, along with the importance of					
this science in understanding the					
genetics of organisms, especially					
plants, and explaining the					
accompanying biological phenomena					
and processes, along with how to					
exploit genetic features and use them					
.to overcome diseases and illnesses					
Stra	tegies education And	d learni	na .9		
: Focus on genetic applications in the			The		
Examples of plants : Using real-life	•	etra	ategy		
studies from the field of agriculture		3110	accgy		
<b>3</b>	. concepts				
Field visits: Organizing field vis	sits to farms and .2				
agricultural research centers to int	roduce students to				
. practical appli	cations of genetics				
Managing the lecture in an applied manner linked to .3					
the reality of daily life to attract the student to the topic of					
the lesson without straying from the core of the topic so					
that the material is flexible ar					
.unders	stood and analysed				
Cuarra Dia aussisura Fusas varia	:Active learning . 4				
Group Discussions: Encourage s					
genetic concepts and their relationsh					
.iiie and solve	problems together				

## :Continuous evaluation . 5

# Assignments and tests: Evaluate students' understanding of the scientific material by conducting . daily and monthly assignments and tests

structure The decision .10

	structure The decision .10				
road	road	name Unit or	Outputs	hours	the
Evaluation	Learning	the topic	Learning		week
			required		
A short	Lectures	A historical	Learn about		1
written		overview,	the history of		
test or an		experiments	the		
oral test		and laws of the	development		
		world Mendel,	of genetics		
		definition of	and the		
		genetics and	influence of		
		its importance	the scientist		
		•	Mendel on the		
			emergence of		
			genetics		
A short	Lectures	Discovering	Identifying the		2
written		genetic	studies and		_
test or an		material and	discoveries		
oral test		determining its	that led to		
		chemical	identifying		
		properties and	genetic		
		composition	material		
A short	Lectures	The process of	Understanding		3
written		replication	the process of		
test or an		and cloning of	DNA		
oral test		DNA	replication in		
A a b a #4	Lasturas	The process of	cells		
A short written	Lectures	The process of	Understanding the process of		4
test or an		DNA cloning	DNA		
oral test			replication in		
			cells		
A short	Lectures	process of The	Understanding		5
written		translation of	the process of		
test or an		DNA	DNA		
oral test			translation in		
			cells		
A short	Lectures	Proteins, their	Identify		6
written		types and	proteins, their		
test or an		functions	nature and the		
oral test			functions they		
			perform inside the cell		
			tile cell		

A alaast	1 4	Comotio	lala satific as a satia	
A short	Lectures	Genetic	Identify genetic	7
written		mutations	mutations,	
test or an			how they	
oral test			occur, and	
			their major and	
			minor types	
A short	Lectures	Genetic	Understanding	8
written		variation and	the process of	
test or an		reassortment	genetic	
oral test			variation and	
			reconfiguration	
			and its impact	
			on plants	
A short	Lectures	Sex	Identify and	9
written		inheritance	understand	
test or an			sex-linked	
oral test			genetics and	
010.1			its effect on	
			living	
			organisms,	
			including	
			plants.	
A short	Lectures	Cytoplasmic	Identify and	10
written	Lectures	genetics	understand	10
test or an		genetics	cytoplasmic	
oral test			genetics and	
Oral lest			its impact on	
			•	
			living organisms,	
			•	
			including	
A - l4	14	0	.plants	
A short	Lectures	Genetic	Learn about	11
written		engineering	the concept of	
test or an		and its	genetic	
oral test		agricultural	engineering	
		applications	and its	
			applications in	
			the agricultural	
			field	
A short	Lectures	General	General review	12
written		Review	of the	
test or an			academic	
oral test			material	
		Monthly exam		13
		1		
		Monthly exam		14
		2		
				15

	evaluation The decision .11
Theoretical semester exams (30%)	%) - Practical semester exams (15%) -
(20%) Daily practical and attendar	nce exams (5%) - Practical final exam
	.(30%) Theoretical final exam -
	Sources Learning And teaching .12
	Books decided Required (
	( methodology that Found
Introduction to Genetics by Abbas Hussein Principles of molecular genetics by authors Muhammad Baqir Sahib, Ali Hammoud Al-Saadi, and Haider Kamel Zidan Molecular biology of the genome, translated by Fathi Muhammad Abdel Tawab	the reviewer Home ( Sources )
Genome Journal	Books And references Prevailing
Genetics Journal	that recommend With it (Magazines
	( Reports ,scientific
https://learn.genetics.utah.edu/	Electronic references, websites

		Course	name: Insect phys	iology	.1
			Course	e Code	.2
			0		
			Semester		.3
		data Duanan	-4: 4 -: - 4		24-2023
		date Prepara	ation this the desc	•	
		shano	Chapter C s the audience Av		
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	number hours	Academic ( tot	al ) number Units		
'		71000011110 ( 101	hours, 3.5		
name resp	onsible The de	cision Academ	nic ( if more from n		
			-	and	email (
			MD Thamer	Salmaı	n Jabr
			Goals	The de	cision
_	he general sys		Goals Subject	Schol	arship
iı	nsects and kno				
	fu	nctions			
		Strate	egies education Ar	nd lear	
	. Foous on th	a anatamiaal a	anaat of inaacta 1	0.4	The
Practical			spect of insects .1 iments in the field	Si	rategy
Tractical		•	ological concepts		
			anizing laboratory		
ex	•		ents with practical		
Electro		• •	insect physiology ding electronic -2		
	_		os and interactive		
	_		,exercises		
Croup Di	oouooiono. En		:Active learning .3		
Group Di	scussions. En	_	nts to discuss and problems together		
		•	uous evaluation .4		
_	•		Assess students'		
unders	tanding of inse		concepts through		
	Linking inse		nents and quizzes o other courses .5		
			structure The	decis	ion .10
road	road	name Unit or	Outputs	hours	the
Evaluation	Learning	the topic	Learning		week
			required		

Daily	Theoretical	Introduction	Students'	5	1
paper	lectures +	to insect	understanding		
exam	practical	physiology	of instructions		
	laboratory	and the body	and directions		
	experiments	wall of	for working in		
		. insects	the insect		
			physiology		
			. laboratory		
Daily	Theoretical	Morphology	Teaching	5	2
paper	lectures +	in insects	students	3	2
exam	practical		about how to		
Oxum	laboratory		form in		
	experiments		insects		
Practical	Theoretical	Digestive	Students	5	3
tests	lectures +	system in	learned about		
	practical	insects	the systems		
	laboratory		through the		
	experiments		anatomy of		
			the digestive		
			system of the		
			American		
D	Theorem	F	cockroach	_	
Practical tests	Theoretical lectures +	Enzymes and their	Teach students how	5	4
lesis	practical	role in	to detect		
	laboratory	insects	enzymes		
	experiments	50015	CHZymics		
Practical	Theoretical	Excretion in	Students	5	5
tests	lectures +	insects	learned about		
	practical		excretion in		
	laboratory		insects		
	experiments				
Practical	Practical	Respiratory	Students learn	5	6
tests	views	And system	about the		
		nervous the	devices		
		system And	through the		
		circulation in insects	anatomy of		
		11156612	the respiratory system and		
			the nervous		
			system (		
			counting the		
			number of		
			) ( heartbeats		
			View the nerve		
			.( cord		
Practical		First test	First test	5	7
tests					

Practical	Laboratory	Sense	Teaching	5	8
tests	practical	organs in	students how		
	applications	insects	to detect the		
			sense organs		
			of the		
			American		
			cockroach		
Practical	Theoretical	The female	Introducing	5	9
tests	lectures +	and male	students to		
	practical	reproductive	the effects of		
	laboratory	systems in	damaging the		
	experiments	insects	brain and		
			nerve nodes		
Practical	Laboratory		Introducing	5	10
tests	practical	The male	students to		
	applications	reproductive	the effects of		
		system in	damaging the		
		insects	brain and		
			nerve nodes		
Practical tests		Second test	Second test	5	11
Practical	Theoretical	Role of	Providing	5	12
tests	lectures +	insect	students with		
	practical	hormones	complete		
	laboratory		information		
	experiments		about the role		
			of insect		
			hormones		
			and their		
			important role		
			in insect		
			control		
			.applications		
Practical	Laboratory	The role of	Providing	5	13
tests	practical	insect	students with		
	applications	pheromones	complete		
		•	information		
			about the role		
			of insect		
			pheromones		
			and their		
			important role		
			in insect		
			control		
			. applications		
Practical	Theoretical	Growth and	Understanding	5	14
tests	lectures +	methods of	growth		
	practical	reproduction	processes and		
	laboratory	-	methods of		
	experiments				
	•		ı	1	

		reproduction .in insects		
Theoretical lectures	General Review	General Review	5	15

evaluation Th	e decision .11
(% 20 ) Theoretical semester exams ( 25 %) - Practical ser	nester exams
Daily practical exams (5%) - Practical final exam (20%) - Theoretical	
.(30)	%) final exam
	Sources .12
	Learning
	And
	teaching
Al-Darkazli, Thabet Abdel Moneim. 1980. Ministry of	Books
Higher Education and Scientific Research	decided
	Required (
	methodolog
	y that
	( Found
Insect Physiology - Part One, Ahmed Al-Shazly /	the reviewer
Alexandria University	Home (
	( Sources
Insect physiology journals	Books And
	references
	Prevailing
	that
	recommend With it
	Magazines ) ,scientific
	( Reports
	Electronic
https://www.sciencedirect.com/book/9780124158191/physiolo	references,
	websites
.gical-systems-in-insects	Websites

		1. Name of the	course
		Fu	ungi 1
		2. Course co	de
	3. S	emester/year	
	First ser	nester / 2023-	-2024
	4. The date this o	lescription was	prepared
	5. Available	forms of	
		atte	endance:
In-person 6. Nu	mber of study hours (total) I	Number of u	nits
	(1	otal) 3.5 uņi	ts 5 hours
Name	of the course administrator	(if more than	n one name is
Email: iq.edu.uokerbala@naser.Yasir	Name: Prof. Dr. Yasse	r Nasser Huss	sein Al-Humairi
	,	Cour	se objectives
explaining the structure of fungi, their classification, and their	0	bjectives of the	e study subject
importance to humans, with information about the			
physiology, genetics, activities, and environment of			
i, presenting most of the important fungal groups, and studying their most im	portant characteristics.		
	9. Teaching	g and learning	g strategies
1 Focus	on agricultural applications:		ategy: Real-
ife examples: Using real-life examples and case studies from			3,
	illustrate		
cology. Field visits: Organizing field visits to farms and agricu	Iltural research centers to		
	introduce students to meth	ods of growi	ng fungi.
	2. Use of technology:		
Websites: Teaching students how to use programs and we	ebsites specific to fungi.		
nulation: Using simulation programs to represent the life cycle	_	standing of c	concepts.
ctronic learning resources: Providing electronic learning reso	urces, such as videos and interactiv	<sub>70</sub>	
	exercises, 3.		
Active learning: Group discussions: Encouraging student	·		
nouve loanning. Group alcoadolistic Elicoaraging states.	keys of fungi 4. Con	tinuous asses	ssment:
Assignments and Quizzes: Assess student understa	-		
		and quizzes.	.
5. Linking r	mycology with other courses		
		10. Cour	rse structure
Week Hours Required Learning Outcomes Name of the	unit or topic Learning meth	od Evaluatio	on method
efinition of the lectures Daily exam 1 <b>Paស្គe</b> រង <b>ទទែល Am</b> gi	Struncatusman of high selboaday of fu	ngi Lectu <sup>5</sup> es	Daily
paper-based exam	principles of		
	mycology.	5	2
	' '	the body struct	ure of fungi

Lectures are a daily paper exam	Fungal reproduction	Providing students with the ability to understand	5	3	
Lectures are a daily paper exam.	Classification of fung	the reproduction of fungi. Students' understanding	5	4	8
Lectures are a daily paper exam.	Classification of	and understanding of the taxonomy of fungi.	5	5	
Lectures are a daily paper exam.	gelatinous fungi, chytrid-	Students' knowledge of the taxonomy of gelatinous	5	6	
A monthly exam. A monthly paper exam. Lectures	like fungi, mont	nly examinahiறstudents' unde	rstanding of Shy	rid-like fun <b>g</b> i. I	Monthly exam.
are a daily paper exam.	Reticulolytic fungi,	Students' understanding of reticulated	5	8	
Lectures are a daily paper exam.	oomycetes	gelatinous fungi. Providing students with concepts about oomycetes	5	9	
Lectures are a daily paper exam.	Taxonomic key to fungi	and methods of classifying them. Ability to solve	5	10	
Lectures are a daily paper exam.	Trichophyton or velvet	the taxonomic key for fungi. Understanding velvety	5	11	
Lectures are a daily paper exam.	fungi are mating fungi	fungi and their biological applications.	5	12	2
Lectures are a daily paper exam.	Cactrid fungi	Understanding symbiotic	5	13	
Lectures are oral tests.	General Review	or zygotic fungi. U	nderstandir <b>5</b> g o	hytrid fu <b>h</b> gi.	General revie
	Monthly exam		5	15	
	51		10 -		0

	11. Course evaluation
Theoretical semester exams (30%) - Practical semeste	r exams (15%) - Daily practical exams (5%) -
Practical final exam (20%) -	Theoretical final exam (30%).
	12. Learning and teaching
Jabr, Kamel Salman. Fungi lectures for the third	resources Required textbooks (methodology, if any
year of plant	
protection, unpublished. Alexopoulus,	(Sources) Main References
CJ1996.Introductory-2 Mycology.4ed	John Wily & Sons
Webster, J. and R.Weber.2007 Introduction	Mainstream recommended books and
to Fungi.3ed .Cambridge University Press	(scientific journalseferpociess)
com.mycobank.www://https	, Internet sites, electronic references

	. Name of the course	1. N			
	Fungi 2				
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	nester/year	3. Seme			
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	scription was prepared	4. The date this desc			
	orms of	5. Available for			
	attendance:				
	ımber of units	of study hours (total) Nun	In-person 6. Numbe		
s	tal) 3.5 uņits 5 hours	(tota			
ne is	f more than one name	e course administrator (if r	Name of th		
nairi	Nasser Hussein Al-Huma	Name: Prof. Dr. Yasser Na	naser.Yasir	q.edu.uokerbala@	Email: id
/es	Course objectives				
ject	ectives of the study subje	Object	assification and importance of fungi	ng the structure, cl	• Explainin
			ohysiology, genetics,	nformation about the p	or humans, with in
			nting most of the important	ology of fungi, preser	activities, and eco
		teristics.	oups, and studying their most important chara	fungal gro	
es	and learning strategies	9. Teaching an	1		
al-	Strategy: Real-	ricultural applications:	1. Focus on a		
		eld of agriculture to	examples and case studies from the f	s: Using real-life (	life examples
		illustrate			
	]		ng field visits to farms and agricultura	l visits: Organizir	ycology. Field
	ds of growing fungi.	troduce students to methods			
		. Use of technology:	ents how to use programs and websit	s: Teaching stude	Wahsites
	anding of concepts.		ograms to represent the life cycles of	_	
		-	roviding electronic learning resources	_	
		interactive			
		exercises, 3.			
		liscuss the taxonomic	scussions: Encouraging students to	∍arning: Group di	Active le
	uous assessment:	keys of fungi 4. Continu			
		of mycology through	uizzes: Assess student understandin	signments and O	Ass
	II			o.g.m.onto ana W	
	nd quizzes.	assignments an		e.g.monto ana w	
	ınd quizzes.			e.goms and <b>v</b>	
ıre	and quizzes.  10. Course structure	assignments an		S.g.monto anu v	
ıre	10. Course structure	assignments an	5. Linking myco	and evaluation method	earning method a
	10. Course structure	assignments and ogy with other courses  Week Hours Require	5. Linking myco	nd evaluation metho	
	10. Course structure	assignments an	5. Linking myco		

	1			
	Pyrenomycetes, their general			
	characteristics, classification	on, rank		
	,Xylariales			
Lectures are a daily paper	Order Hypocreales, order	Understanding	5	- 2
exam	Clavicipitales, order	cyst fungi, their		
	Ophiostomatales, order	structure and o	lassification	
	Diaporthales.			
Lectures are a daily paper	Row	Understanding	5	;
exam	Hymenoascomycetes	cyst fungi, their		
	Rank	structure and o	lassification	
	Pezizales(Operculate			
	(discomycetes), its features,			
	importance, classification, f	amily		
	Pezizaceae, family			
	Tuberaceae, family			
	Morchellaceae.			
	Row			
	Order Hymenoascomycetes			
	Order Hymenoascomycetes			
	Helotiales(Inoperculate			
	(discomycetes), their general			
	features, importance,			
	classification, family. Scleroti	iniaceae		
Lectures are a daily paper	Row	Understanding	5	4
exam	Hymenoascomycetes	cyst fungi, their		
Oxum	Rank	structure and o	lassification	
	Lecanorales(Lichenized (fungi),			
	the life of lichens and			
	their			
	importance. Phylum Basidio	myootos	5	
Lectures are a daily paper		cyst fungi, their	3	,
exam	Basidiomycota:	structure and	Jacoification	
	Phylum: its general	Structure and d	assincation	
	characteristics, existence and			
	importance, basidiomycophore,			
	mechanism of release of			
	basidiomycota, types of			
	mycelium, asexual and		_	
Lectures are a daily paper	sexual reproduction,	Understanding	5 us basidiomy	cete funci
exam		on. Describethe homologo		Lete rungi
	Homobasidiomycetes	structure and o	lassification	
	Structure and appearance of			
	fruiting bodies, their importance, and class	sification.		

Exam, monthly paper	The first month	Monthly exam	5	7
exam, monthly lectures, daily				
paper exam	Describe the homologous basidiomyce	Understanding te fungi basidiomycetes, their	5	8
	Homobasidiomycetes	structure and cla	assification	
	Structure and appearance of			
	fruiting bodies, their importance,			
	and classification. First mor	nth exam		
Lectures are a daily paper exam	Describe symmetric	Understanding	5	9
	basidiomycetes, under r	ow <sub>basidiomycetes,</sub> their		
	Gasteromycetes, development	structure and cla	assification	
	and genetic pathway of subclass			
	Gasteromycetes, their			
	importance,			
Lectures are a daily paper exam	classification. Describe	Understanding	5	10
	symmetric basidiomycet	es under row, their		
	Gasteromycetes, development	structure and cla	assification	
	and genetic pathway of subclass			
	Gasteromycetes, their			
	importance,			
Lectures are a daily paper exam	classification. Describe the	Understanding	5	11
	differentiated basidi	omyzatte fuyogieSJasar		
	Heterobasidiomycetes	structure and cla	assification	
	Order Ceratobasidiales, Order			
	Dacrymycetales, Order			
	Auriculariales, Order			
	Tremellales.			
Lectures are a daily paper exam	Describe the homologous	Understanding	5	12
	basidiomyce	te fungidiomycetes, their		
	Homobasidiomycetes	structure and cla	assification	
	Structure and appearance of			
	fruiting bodies, their importance,			
	and classification. First mor	nth exam		
Lectures are a daily paper exam	The difference between cyst	Understand the	5	13
	fungi and basidiomycet	es difference between		
		cyst fungi		
		and basidio	nycetes	
Lectures and oral tests	General Review	General Review	5	14
	Monthly exam		5	15

	11. Course evaluation
Theoretical semester exams (30%) - Practical semes	ster exams (15%) - Daily practical exams (5%) -
Practical final exam (20%)	- Theoretical final exam (30%).
	12. Learning and teaching
Jabr, Kamel Salman. Fungi lectures for the third	resources Required textbooks (methodology, if a
year of plant	
protection, unpublished. Alexopoulus,	(Sources) Main References
CJ1996.Introductory-2 Mycology.4ed	John Wily & Sons
Webster, J. and R.Weber.2007 Introduction	Mainstream recommended books and
to Fungi.3ed .Cambridge University Press	(scientific journalseferpodess)
com.mycobank.www://https	, Internet sites, electronic references

	Nematodes : Course name .1				.1
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			3.5 : Cours	e code	.2
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	date Preparation this Description 4/24/2024 .4				
			2000ption		
		shapes the audie	ence Available in	person	.5
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n	umber hours	Academic (total	) number Units ( t	total)6	.6
		ible The desision	Academia / if ma	6 tram	nama
n	ame respons	ible The decision	Mentionse		
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		Dr. Istabraq	Muhammad Abde		
•	4 1 4 1		Estabraq.m@ud		<u>.</u>
		ents to the importar .nd their economic i			
		nematodes and the			
	ucational and		Goals Subjec	-	
pı	eparation for	r students			
Strategie		Students gain exp	•		
		ng and diagnosin	<u> </u>		
	rieid visits a	ind microscopic la	aboratory training		The rategy
	Use	of laboratory equ	ipment and tools		alcgy
Stude		ne lectures prepar	•		
			-11 Tl	1	
road	road	name Unit or the	structure The Outputs	e decis hour	on .10
Evaluatio	Learning	topic	Learning	S	week
n		•	required		
Daily	Theoretica	Introductions to	The history of	6	1
tests	I lectures	the study of plant nematodes , an	the		
		introduction <b>to</b>	development of		
		some practical	nematology,		
		methods, a	including the		
		presentation of the methods and	definition of		
		tools used in	nematodes		

		studying them,	and the group		
		optical	of caecilians,		
		microscopes,	the economic		
		sieves, filters,	importance of		
		fiberglass ,	nematology ,		
		fabrics , funnels	and a		
		. and holders	historical		
			overview of		
			the		
			relationship of		
			plant		
			nematology to		
			other		
			.sciences		
Daily	Daily	Extraction	The external	6	2
tests	lectures	methods And	and internal		
		extract	structure of		
		Nematodes	the nematode		
		from their	includes the		
		samples (soil,	general		
		plant part	structure of		
		Extraction	the body, the		
		methods And	body wall, the		
		extract Nematodes	epidermis		
		from soil	layer, the bodily		
		samples .	muscles, the		
		Methods	body cavity,		
		Extract And	and the		
		extract	diaestive		
		Nematodes	canal. Figure		
		from their	2		
		samples (soil,			
		plant part			
		Extraction			
		methods And			
		extract			
		Nematodes			
		from soil			
Daile	Deile	samples	Some vital		
Daily tests	Daily	Identifying the stages of	functions and	6	3
เยรเร	lectures	development of	actions in		
		the nematode life	nematodes		
		Ad) ,cycle (eggs	include		
		1, J2, J 3, J4, for	movement,		
		J, 5	moulting,		
			hatching, the		
			general life		

		<u></u>			
			cycle, methods		
			of reproduction,		
			methods of		
			laying eggs,		
			.and nutrition		
			Monthly test 1		4
Daily	Daily	Training students	Study of the	6	5
tests	lectures	on the process of	classification of		
		identifying,	some genera in		
		diagnosing, and	the world and		
		examining	Iraq, including:		
		nematode	the general		
		samples extracted	description of		
		from them	each genera		
			and the		
			distinctive		
			characteristics		
			of the male,		
			female, and		
			larvae, and		
			drawing them in		
			the lecture for		
			.five genera		
Daily	Daily	Training	6	6	6
tests	lectures	students on the	Nemato	U	U
เษรเธ	iectures	process of			
		identifying,	de taxonomy,		
		diagnosing, and	which		
		examining	includes the		
		nematode	phylum		
		samples	Nematode, its		
		extracted from	categorical		
		them	orders, and a		
		tileili	simplified		
			division of the		
			most		
			important		
			genera of		
			plant		
			. nematodes		
Daily	Daily	and permanent	Study of the	6	7
tests	lectures	microscopic	classification of		
		preparations and	some genera in		
		examining them	the world and		
		under an optical	Iraq, including:		
		microscope	the general		
		_	description of		
			each genera		
			and the		
			distinctive		
			characteristics		
			of the male,		
			female, and		
			larvae, and		
L	i	1		l	

			drawing them in		
			the lecture for		
			.five genera		
Daily	Daily	Studying	A study of the	6	8
_	lectures		classification of	O	•
tests	iectures	and drawing	some genera in		
		some of the	the world and		
		phenotypic and	Iraq, including:		
		anatomical	the general		
		characteristics	description of		
		of nematodes ,	the genus and		
		the front of the	the distinctive		
		head, types of	characteristics		
		spears, the	of individuals		
		digestive	for five other		
		system, the	nematode		
		tail region, and	.genera		
		the male and			
		female			
		reproductive			
		•			
Daily	Daily	.systems	Factors	•	•
Daily	Daily	A simplified	affecting the life	6	9
tests	lectures	key to defining	of nematodes		
		the important	and their		
		genera of plant	relationships		
		nematodes,	include the soil		
		root knot	environment,		
		nematodes ,	the root zone,		
		and slow	the plant		
		decline	environment,		
		nematodes .	the distribution		
		Wheat wart	and activity of		
			nematodes in		
			the soil,		
			horizontal and		
			vertical		
			distribution,		
			survival and		
			means of		
			spread.		
		<b></b>	Nematodes		
Daily	Daily	Methods of	Pathological	6	10
tests	lectures	growing	symptoms of		
		nematodes on	plant nematode		
		their plant	infection		
		hosts that they	include external		
		infect,	symptoms, internal		
		according to	symptoms, and		
		each type of	symptoms on		
		nematode and	The Green		
		plant, and their	A , Group		
		1-1	A, Group		

		.pathogenicity	Symptoms on		
		.p.aogoo.ty	Root group		
			Monthly test2		11
training	Daily				
training	Daily	3	biological relationship	6	12
	lectures	Study of	between plant		
		some	nematodes and		
		phenotypic	other living		
		characteristics	organisms,		
		the nervous ,	including fungi,		
		system , and	bacteria,		
		the excretory	viruses,		
		system	complex		
		<b>,</b>	diseases and		
			transmission in		
			the field of		
			.plant viruses		
Daily	Daily	Evaluation of	Diseases	6	13
tests	lectures	some modern	caused by	J	
10010	100141100	methods of	nematodes on		
		control and the	plants include		
		use of	the most		
		pesticides to	important		
		combat	diseases of the		
			root group,		
		nematodes	including:		
			nematodes on		
			citrus fruits,		
			root knot		
			nematodes ,		
			and nematodes		
			on citrus fruits .		
			Dwarf , false		
			deformity nematode ,		
			nematode ,		
			Lancellidae ,		
			spiral nematode		
Daily	Daily	Using	Nematode	6	14
tests	lectures	environmentall	classification	0	17
	.50(4) 03	y friendly	includes the		
		methods for	phylum		
		control and	Nematode , its		
		focusing on	taxonomic		
		biological	ranks, and a		
		methods	simplified		
		inethous	division of the		
			most important		
			genera of plant		
			. nematodes		
			Monthly test 3		15

evaluation The decision Daily test - monthly test .11		
Methodological books as well as	Sources Learning And teaching .12	
keeping up with modern		
research		
Al-Hazmi's book - Al-Zarri –	Books decided Required (	
Plant Nematology Book by Abu	( methodology that Found	
Gharbia		
Al-Hazmi's book - Al-Zarri –	the reviewer Home ( Sources )	
Nematology book		
Arab Prevention Plant pathology	Books And references Prevailing	
Journal	that recommend With it (Magazines	
	( Reports ,scientific	
Plant nematodes	Electronic references, websites	

Daily tests	Daily lectures	Conduct simple experiments on	methods of spread, and competition with crops  Types of plant classification,	6	3
		control methods	bush resistance, methods of dividing it, and the principles adopted in 1 dividing it		
Daily tests	Practical exercises	Introduction to the natural and chemical characteristics of pesticides	Study of agricultural mechanical, biological and chemical methods of bush resistance	6	4
Daily tests	Sample collection	Calculate the amount of pesticide with the application	Chemical methods, a glimpse into the history of bush chemical resistance	6	5
First monthly test	-	-		6	6
Daily tests	Daily lectures		Definition of pesticides and their characteristics	6	7
Daily tests	Daily lectures		Factors that determine the effect of the pesticide	6	8
Daily tests	Daily lectures	Plant density study	Selective pesticides, their classification and factors affecting it	6	9
Daily tests	Sample -collection	Means of spread and reproduction	Persistence of pesticides in soil, the process of pesticide catabolism and its residues		10
Second monthly test	-	-		6	11

Daily	Daily	Calibrating	The study of	6	12
tests	lectures	sprinklers	chemical		
10010	100141100	And use it	groups,		
		7 11101 0100 110	including		
			chemical		
			composition,		
			chemical		
			symbol, and		
			physical and		
			chemical		
			properties		
			• •		
Daily	Daily	Collect desk	Methods of	6	13
tests	lectures	resources	application and		
			behavior of		
			pesticides in		
			soil and plants,		
			and studying		
			the method of		
			killing		
Daily	Daily	Practical	Study the most	6	14
tests	lectures	exercises	important		
			methods used		
			in disposing of		
			pesticide		
			residues		
Third-	-	-	-	6	15
monthly					
test					

evaluation The decision .1				
Daily testing, monthly testing, and reporti				
	Sources Learning And teaching .12			
	Books decided Required (			
	( methodology that Found			
Preparing lectures	the reviewer Home ( Sources )			
The jungle book scheduled	Books And references Prevailing			
	that recommend With it (Magazines			
	( Reports ,scientific			
Jungle sites	Electronic references, websites			

	Course Name .1						
The theoretical agricultural dream							
	Course Code .2						
			Semeste	er / year	.3		
			Second seme	ster 202	3-2024		
		date Prepa	ration this the des	cription	.4		
		•		• • • • • • • • • • • • • • • • • • •	2023		
		shan	es the audience A	vailahlo			
		σπαρ	es the audience P				
			(-1)	My pre			
n	umber not	•	tal ) number Units	· · · · ·			
			ours 3.5 academi				
nar	ne respon	sible The decisio	n Academic ( if m				
			Mentions	ed ) And	l email		
taha.m@uok	<u>erbala.edu.</u>	<mark>iq</mark> a. Taha Musa l	Muhammad Manse	our Al-S	uwaidi		
			Goal	s The de	cision		
agricultural di	ream Definitio	on of .1	Goals Subje	ct Schol	arship		
	(Acarolo		•		•		
Its relationship							
priyiur	n and method classifica .						
Identify th	e most import						
species harm	ful to agricult						
	. produc	_					
-	seful in biolog						
control of	insects and m		togica advection	And look	ning O		
. 500	4h		tegies education /				
			cultural research center	re	The		
to familiarize	students with	h the most important t	pes of agricultural mite	es St	rategy		
and the symp	toms of infect	ion they cause in the r	nost important econom . crop				
			:Use of technology	.2			
Electronic learn	ing resources	: Providing electronic :Active learning .3	learning resources, suc				
Group discu	ssions: Enco		PPt Tas vided. scuss the most importa				
		the crops they infect, a	and ways to combat the	m			
Assign	ments and Qu		Continuous evaluation s' understanding throug				
			assignments and quizze	s			
Linking a	agricultural sc		nd the most important lifferences between the				
		•	mierences between the	'''			
			structure T	he decis	ion .10		
road	road	name Unit or the	Outputs	hours	the		
Evaluation	Learning	topic	Learning	nouis	week		
		τορίο	required		Ook		
Paper exam	Lectures	A historical	Introduction and	5	1		
2p 21 23 33 31 11		overview of the	historical review	5	_		
		science of acrostics					
		and ji in the world					
		and Iraq and the					

			factors that helped		
			it survive and		
			.spread		
	5	Understanding the	economic	Lectures	Paper exam
•	3	economic	importance of the		
		importance of the	dream		
		agricultural dream			
;	5	Knowing the	Habits and habitat.	Lectures	Paper exam
`		customs and	The location of the		
		habitats of the	mite in the animal		
		dream	kingdom and a		
			study of some of its		
		17 1 11 11 1	important families		_
	5	Knowing the vital	Internal anatomy of	Lectures	Paper exam
		systems of the	a dream		
		dream			_
ļ.	5	Clarifying the most	Common red mite	Lectures	Paper exam
		important families	family		
		of vegetarian nutrition			
		Clarifying the most	The false red dream	Lectures	Paper exam
(	5	important families	family	Lectures	i apei exam
		of vegetarian	iaiiiiy		
		nutrition			
	5	Clarifying the most	Hairy wrist dream	Lectures	Paper exam
	3	important families	family		. apor oxum
		of vegetarian	,		
		nutrition			
	5	Monthly exam	Monthly exam		
	5	Clarifying the most	Ariophytic mite	Lectures	Paper exam
'	3	important families	family		•
		of vegetarian	-		
		nutrition			
1	5	Know the most	Predatory mites	Lectures	Paper exam
		important types of			
		predatory dreams			
1	5	Knowing the most	Dream of stored	Lectures	Paper exam
		important types of	grains and food		
		mites stored food			
		items	Familias aftists	1 4	D
1	5	Know the most	Families of ticks	Lectures	Paper exam
		important families of ticks and the	and the most important thing that		
		difference between	distinguishes them		
		them	from mites		
	_	Explain the	Variety honey bees	Lectures	Paper exam
1	5	importance Variety	turioty noney bees	Eccluses	. aper exam
		honey bees			
1	5	Know the most	Microbicides	Lectures	Paper exam
1	2	important types of	5. 55.51466		. Apr. Onwill
		mite pesticides			
			Monthly arons		
1.	5	Monthly exam	Monthly exam		Į.

evaluation The decision .11
Sources Learning And teaching .12

Non-insect animal pests and	Books decided Required (
methods of controlling them	( methodology that Found
Mites that are harmful to .2	,
economic plants and methods	
of combating them	
Mites injurious to economic	the reviewer Home ( Sources )
plants	
Arab Plant Protection Journal,	Books And references Prevailing
Karbala Journal of Agricultural	that recommend With it (Magazines
Sciences	( Reports ,scientific
Electronic reference for	Electronic references, websites
informatics	

course					
-	1. Name of the				
Course code	Pesticides 2.	· ·			
	Semester/year				
	nester / 2023-2				
prepareu	escription was p	4. Date this up			
forms	e attendance t	5. Available			
My presence					
tal)	er of units (tot	of academic hours (total) Numbe	6. Number o		
	5 hours				
tioned) and er		of the course official (if more than one	Name of		
- Lie ativos		Kadhim.h@uokerba			
urse objectives academic subject			nd development	dow of the origin a	1-A historical over
acauenne	Objection .			of pesticides 2-	I'A motorica.
		sticides	he correct methods for using pes	-	lassification of pest
			cides and how to	dangers of pesti	4- The
			ct use of pesticides	nem. 5- The correc	avoid th
ng strategies	ing and learni	9. Teachi			
	T-				
entifying		all types and types of strategic p			
entifying		mportant indicative and warning	and understanding the most in	Trade delte to f	sian
	1	mportant indicative and warning of mixing and optimal use of	and understanding the most in		_
	1	mportant indicative and warning	and understanding the most in		_
	reating them i	mportant indicative and warning of mixing and optimal use of	and understanding the most in		_
if they occur	reating them i	mportant indicative and warning of mixing and optimal use of	and understanding the most in		_
if they occul	reating them i	mportant indicative and warning of mixing and optimal use of on plants, avoiding them, and tr	and understanding the most in fields to learn about methods of nethods of pesticide poisoning	des. Identifying n	pestici
if they occur	reating them i 10. Cour	mportant indicative and warning of mixing and optimal use of on plants, avoiding them, and tre Required learning outcomes Understanding the	and understanding the most in fields to learn about methods of nethods of pesticide poisoning  Name of the unit or topic	des. Identifying n	pestici Evaluation method
rse structure	10. Cour Week hours	mportant indicative and warning of mixing and optimal use of on plants, avoiding them, and transfer of Required learning outcomes  Understanding the	and understanding the most in fields to learn about methods of nethods of pesticide poisoning  Name of the unit or topic  General introduction  to pesticides	des. Identifying n	pestici Evaluation method
if they occur	reating them i 10. Cour	mportant indicative and warning of mixing and optimal use of on plants, avoiding them, and tree Required learning outcomes  Understanding the reasons for using pesticides and their role in agricultural production	and understanding the most in fields to learn about methods of nethods of pesticide poisoning  Name of the unit or topic  General introduction	des. Identifying n  Learning method	pestici Evaluation method
rse structure	10. Cour Week hours	mportant indicative and warning of mixing and optimal use of on plants, avoiding them, and track the sequired learning outcomes  Understanding the reasons for using pesticides and their	and understanding the most in fields to learn about methods of nethods of pesticide poisoning  Name of the unit or topic  General introduction to pesticides  General methods of pest	des. Identifying n  Learning method	pestici  Evaluation method  Attend students' o
rse structure	reating them i 10. Cour Week hours 5	mportant indicative and warning of mixing and optimal use of a on plants, avoiding them, and tree and the second s	and understanding the most in fields to learn about methods of nethods of pesticide poisoning  Name of the unit or topic  General introduction to pesticides  General methods of pest control	des. Identifying n  Learning method	pestici  Evaluation method  Attend students' o
rse structure	10. Cour Week hours	mportant indicative and warning of mixing and optimal use of an on plants, avoiding them, and tree Required learning outcomes  Understanding the reasons for using pesticides and their role in agricultural production Identifying the most important methods used in combating various	and understanding the most in fields to learn about methods of nethods of pesticide poisoning  Name of the unit or topic  General introduction to pesticides  General methods of pest control	Learning method	pestici  Evaluation method  Attend students' o
rse structure	reating them i 10. Cour Week hours 5	mportant indicative and warning of mixing and optimal use of on plants, avoiding them, and transport of the manner	and understanding the most in fields to learn about methods of nethods of pesticide poisoning  Name of the unit or topic  General introduction to pesticides  General methods of pest control	Learning method	pestici  Evaluation method  Attend students' of
rse structure	reating them i 10. Cour Week hours 5	mportant indicative and warning of mixing and optimal use of an on plants, avoiding them, and tree Required learning outcomes  Understanding the reasons for using pesticides and their role in agricultural production Identifying the most important methods used in combating various	and understanding the most in fields to learn about methods of nethods of pesticide poisoning  Name of the unit or topic  General introduction to pesticides  General methods of pest control	Learning method	pestici  Evaluation method  Attend students' of
rse structure	reating them i 10. Cour Week hours 5	Required learning outcomes  Understanding the reasons for using pesticides and their  role in agricultural production Identifying the most important methods used in  combating various agricultural pests Understanding all the important terms and abbreviations	and understanding the most in fields to learn about methods of nethods of pesticide poisoning  Name of the unit or topic  General introduction to pesticides  General methods of pest control  Some important terms and definitions	Learning method	pestici  Evaluation method  Attend students' of
rse structure	reating them i  10. Cour  Week hours  5	Required learning outcomes  Understanding the reasons for using pesticides and their  role in agricultural production Identifying the most important methods used in  combating various agricultural pests Understanding all the important terms and abbreviations toxicity used in the field of	and understanding the most in fields to learn about methods of nethods of pesticide poisoning  Name of the unit or topic  General introduction to pesticides  General methods of pest control  Some important terms and definitions	Learning method	Evaluation method  Attend students' of Attend a paper ex
rse structure	reating them i  10. Cour  Week hours  5	Required learning outcomes  Understanding the reasons for using pesticides and their  role in agricultural production Identifying the most important methods used in  combating various agricultural pests Understanding all the important terms and abbreviations	and understanding the most in fields to learn about methods of nethods of pesticide poisoning  Name of the unit or topic  General introduction to pesticides  General methods of pest control  Some important terms and definitions	Learning method	Evaluation method  Attend students' of Attend a paper ex

Attendance to ans		General and comprehensive	review	5	6	
questions of the fi	rst month					
Attend the stude	nts' discussio	on Pesticide Insecticides	Knowing everything related to pesticides and their	5	7	
Attend a paper	∍xam	Division of herbicides (bush)	classifications. Knowing the details and types	5 s of bush pestici	8 cides	
Attend students	discussion	Fungicides	Knowing the types of fungicides, their classification, and their mechanisms	5	9	
Attend a paper	exam	Metabolism Of	of action. Knowing the		10	
- 1		Chemical	metabolism and transform	nations of chemica	als	
		Pesticides				
	My presence		Monthly review	5	11	
Attendance to ans		General and comprehensive	exam	5	12	
Pesticides and en	/ironmental poll	ution, in-person student discuss	sion Knowing the effect of pesticides on the	5	13	
Attend a paper	exam	Pest resistance to pesticide ac	environment and the ction types of pollution.	5	14	
	Му		Development of	5	15	
	presence in th	ne field	resistance among pests against pesticides. A field			
11		(	visit to the site, conducting n	mixing operation	s for pesticide	s, and loaning diffe

	11. Course evaluation
Theoretical semester exams (20%) - Theoretical	I daily exams (10%) - The practical semester exams (15%)
The practical daily exams (5%) - The practical fina	al exam (20%) - The theoretical final exam (30%).
	12. Learning and teaching resource
Pesticides	Required textbooks (methodology, if any)
Khaled Al-Ad	del
21	Main references (sources)
Insecticides	Main recommended books and references (scientific journals, repo
Nizar Mustafa Al-Male	h )
com.meleigi://https/ Plant Health https://	Electronic references, Internet sites
www.fao.org/pesticide-registration-	
toolkit/information-	
/sources/scientific-reviews/ar	



:code		erial: bio- stant	The fou stage	rth	Mandatory (essential)		
Number of units:		actical ours: 3	Theoret hours: 2		Planned teaching hours		
					Description of the curriculum		
	Introducing students to the importance of biological resistance in resisting agricultural pests and reducing their economic damage						
Introducing st resisting agric		Learning Outcomes					
					Methodical book		
Final theoretica I exam	Final practical test	Daily theoretic al tests	Practical quarterl y tests	Theor etical semes ter tests	Semester grades		
%30	%20	%5	%20	%25			

## **Threads**

Numb er Hours	Article The process	Numb er Hours	Article Theory	The week
	Introduction to the role of biological resistance in plant protection		Insects and their relationship with the environment , conflict between humans and insects, insect damage	1

3		2	Benefits of insects, natural	
	Procedures for introducing vital :enemies	2	selection, sexual selection, natural equilibrium	2
3	Diagnosing the pest as an exotic -1 .species	2	:Natural resistance to insects	3
3	Determine the original habitat of -2 .the introduced pest	2	Independent factors, dependent factors	4
3	External exploration of biological -3 .enemies	2	Stages of dormancy, activity, heat death, humidity, sunlight, wind and rainfall	5
3		2	Soil texture and pH, biological factors, food quality, food quantity	6
3	.Quarantine for imported models -4	2	Sex ratio and egg hatchability	7
3	Breeding and mass propagation of -5 biological enemies	2	Biological resistance to insect pests	8
3	Colony formation	2	Biological resistance and the phenomenon of multipopulation, the emergence of the evolution of biological resistance	9
3	Final evaluation of vital enemies method of isolation and exclusion, )) .((construction of life tables	2		10
3	Important groups of insect parasites	2	Methods used in biological resistance programs	11
3	Orders to which parasitic insects belong	2	Importing vital enemies	12
3	.Parasites of the order Hymenoptera -1	2	Providing protection for vital enemies	13
3	.Parasites of the order Diptera -2	2	Breeding and multiplying biological enemies	14
3		2		15

C	ourse Name .1
	rop insects
	ourse Code .2
	ourse code .2
Som	ester / year .3
	nester / 2023-2024
date Preparation this the	•
	2023-12-12
shapes the audience	
	My presence
number hours Academic ( total ) number U	• •
	- 3,5 units 5
name responsible The decision Academic ( if more fr	
	and email (
mushtak.t@uokerbala.edu.iq Prof. Mushtaq Ta	
G	ioals The decision
This course aims to make the student knowledgeable and	Goals Subject
professional versed To learn about the economic	Scholarship
importance of field crop insects, the basics of insect control, definition of crop insects, description and hosts,	
damage, manifestations of infestation, life cycle,	
distribution and methods of combating field crop insects	
Strategies education	on And learning .9
- Gaining experience, skill, and practical ability in detect	tion The
About warehouse pest infestations.	strategy
- the stages of Gaining the ability to distinguish between	n
stored insects.	_
<ul> <li>Acquiring the skill of periodic inspection, theoretically and practically, of materials stored in silos and grain st</li> </ul>	
- Use preventive methods Such as heat and ozone gas	as
safe and clean alternatives away from the use of diagnose The student's ability to .chemical pesticide	ne l
and distinguish between injuries and symptoms of	
injury resulting from insects and the damage resulting	ng
.from them and estimate the severity of the injury	6
- Distinguishes the life stages of harmful insects and tl	heir
. relationship to their ability to infect plants	
- Knowing the economic importance of harmful insect	
determine whether the insect is worth controlling or	
whether it is not economically important	um fu l
Practicing modern integrated methods in combating har	
He chooses the best safe alternatives for pest control. in	
and how to best use chemical pesticides for pest co	
structur	e The decision .10

road	road	name Unit or	Outputs	hours	the
Evaluation	Learning	the topic	Learning		week
	3		required		
Daily	Lectures	A historical	Explaining .	5	1
paper test		overview of	insects of		_
		crop insects in	multiple plant		
		the world and	families		
		Iraq and the			
		factors that			
		helped them			
		survive and			
·		.spread			_
Daily	Lectures	The economic	An	5	2
paper test		importance of	explanation of the economic		
		crop insects and the most	importance of		
		important	crop insects		
		damage they	crop insects		
		cause			
Daily	Lectures	Insects of	Introducing	5	3
paper test		many plant	students to		
		families	insects of		
		Locusts - carob	multiple plant		
			families		
Oral test	Lectures	Ground insect	ldentifying,	5	4
	20014.00	Ground insect	detecting and		-
			combating		
			ground		
			insects		
Oral test	Lectures	Wheat and	An	5	5
		barley insects	explanation of		
			the most		
			important insects of		
			wheat and		
			barley		
First test	evaluation	First test	First test	5	6
Paper	Lectures	Yellow and	An	5	7
test	Loctures	white corn	explanation of	3	′
		insects	the most		
			important corn		
			insects		
practical	Lectures	Insects of the	Explaining the	5	8
test		legume family	most		
			important		
			insects of the		

			leguminous family		
Oral test	Lectures	Cotton insects	Explanation of the most important	5	9
			cotton insects		
Paper test	Lectures	Sugar beet insects	revealing of Sugar beet insects	5	10
practical test	Lectures	Jet and clover insects	Illustration of jet insects and clover	5	11
Second test	evaluation	Second test	Second test	5	12
Oral test	Lectures	Sesame and safflower insects	Interpretation of a dream about stored materials		13
Paper test	Lectures	Birds and rodents	the Explaining most important types of birds	5	14
practical test	Lectures	Practical and field review	Practical and field review	5	15

	evaluation The decision .11
Theoretical semester exams (30%)	- Practical semester exams (15%) -
Daily practical exams (5%)	- Final practical exam (20%) - Final
	. (30%) theoretical exam
	Sources Learning And .12
	teaching
Field crop insects, Prof. Dr. Iyad	Books decided Required (
Youssef Al-Haj Ismail, 90 pages	( methodology that Found
Insect journal	Books And references Prevailing
	that recommend With it
	( Reports ,Magazines scientific)
https://www.mdpi.com/journal/insects	Electronic references, websites

Course name: Fruit diseases .1				
	Course	Code .2		
Semester / year .3				
Se	cond semester 20	-		
date Prepara	tion this the descr	ription .4		
·		2023/5/12		
shapes	the audience Ava	ailable .5		
	My prese			
number hours Academic ( tota				
,	Hours, 3.5 un	,		
name responsible The decision Academi				
		and email (		
:Name: Prof. Dr. Ra	ja Ghazi Abdul Mo	hsen Email		
abudla	lmoohsin.rajaa@uol	kerbala.edu.iq		
	:Go	als Decision		
The course presents the	:Goals Subject	Scholarship		
concepts of diseases that affect				
fruit trees and post-harvest				
diseases, the most important				
symptoms and signs of these				
diseases, the organism that				
causes the disease, the				
conditions suitable for the				
spread of the disease, the life				
cycle of the pathogen, and the				
most important methods of				
.resistance				
Strate	gies education An	d learning .9		
Focus on the most important diseases t	hat affect fruit .1	The		
: trees, post-harvest diseases, and ways		strategy		
Real-life examples: Using real-life examples and case				
studies in the field of diseases affecting fruit trees and				
post-harvest diseases to illustrate the effects of . pathogens on plants				
Field visits: Organizing field visits to field -2				
And research centers (greenhouses) orchards				
Agricultural education to introduce students to practical				
.applications				
Electronic learning resources: Pro	_			
learning resources, such as video				
	exercises,			
:Active learning .3				

Group Discussions: Encourage students to discuss and solve problems together

:Continuous evaluation .4

Assignments and tests: Assess students' understanding of the concepts of diseases affecting fruit trees and postharvest diseases Through assignments and tests.

Linking fruit pathology to other courses .5

structure The decision .10

structure The decision .10					
road	road Learning	name Unit or	Outputs	hours	the
Evaluation		the topic	Learning		week
			required		
Daily	Lectures	Introduction	Students	5	1
paper	with	to the most	understand		
exam	Practical	important	them		
	laboratory	diseases that	Diseases		
	application	affect fruit	that affect		
		trees and	fruit trees		
		post-harvest	and post-		
		. diseases	harvest		
		1 41004000	diseases		
			.And widely		
Daile	Field.	The		_	
Daily	Field	The most	Providing students	5	2
paper exam	observations with	important diseases that	with models,		
Exam	Laboratory	affect apples	slides, and		
	practical	and trout	pictures of		
	application	and ways to	the most		
	арриоссион	combat and	important		
		. reduce them	diseases that		
			affect apples		
			and		
			marmots,		
			along with		
			. field visits		
Practical	Lectures	The most	Identify the	5	3
tests		important	most		
		diseases that	important		
		affect stone-	models,		
		stone trees	slides, and		
		and ways to combat and	pictures of the most		
		reduce them	important		
		reduce tricili	diseases that		
			affect stone-		
			stone trees		
	l			l .	

			!tla fi a l al		
			with field		
	1	<b>T</b> I	. visits	_	_
practical	Lectures	The most	Identify the	5	4
test	Video	important	most		
		diseases that	important		
		affect grapes	models,		
		and their	slides, and		
		control and	pictures of		
		reduction	the most		
			important		
			diseases that		
			affect		
			grapes, with		
			field visits		
practical		First test	First test	5	5
test					
practical	Lectures	The most	Getting to	5	6
test		important	know the		
		diseases that	most		
		affect citrus	important		
		fruits (Part	models,		
		One) and	slides, and		
		ways to	pictures of		
		combat and	the most		
		reduce them	important		
			diseases that		
			affect citrus		
			fruits (Part		
			One) with		
			field visits		
practical	Lectures	The most	Providing	5	7
test	Video	important	students		
		diseases The	with models,		
		most	slides, and		
		important	pictures of		
		diseases that	the most		
		affect citrus	important		
		fruits (Part	diseases that		
		Two) And	affect citrus,		
		ways to	along with		
		combat and	field visits		
		reduce it			
practical	Lectures	The most	Providing	5	8
test	Video	important	students		
		diseases that	with models,		
		affect olive	slides, and		
		trees and	pictures of		
		ways to	the most		
		combat and	important		
		reduce them	diseases that		
		.04400 (110111	aiooacoo tiiat	<u> </u>	

			affect olive		
			trees, along		
			with field		
		Cocond toot	. visits		
practical		Second test	Second test	5	9
test	Dantinal	<b>T</b> I		_	
practical	Practical	The most	Introducing	5	10
test	views	important	students to		
		diseases that	their		
		affect palm	importance		
		trees and	Diseases		
		ways to	affecting		
		combat and	palm trees		
		reduce them	through field		
			. visits		
practical	Field and	The most	Providing	5	11
test	laboratory	important	students		
	observations	diseases that	with models,		
		affect	slides, and		
		walnuts and	pictures of		
		ways to	the most		
		combat and	important		
		reduce them	diseases that		
			affect		
			walnuts,		
			along with		
			. field visits		
practical	Lectures	The most	Identifying	5	12
test		important	the most		
		diseases that	important		
		affect	diseases of		
		pistachios	pistachio		
		and ways to	. plants		
		combat and			
		reduce them			
practical	Practical	The most	Identify the	5	13
test	views	important	most		
		diseases that	important		
		affect figs	diseases that		
		and ways to	. affect figs		
		combat and	_		
		reduce them			
practical	Lectures	The most	Identify the	5	14
test	with	important	causes of		
practical	Field and	post-harvest	post-harvest		
test	laboratory	diseases are	diseases and		
	observations	to combat	the most		
		and reduce	important		
		them	modern		
			methods for		
<u> </u>			<u> </u>		

		controlling and reducing disease .causes		
	Third test	Third test	5	15

	evaluation The decision .11		
Theoretical semester exams (30%) - Practical semester exams (15%)			
Daily practical exams (5%) - Practi	ical final exam (20%) - Theoretical		
	.(30%) final exam		
	Sources Learning And .12		
	teaching		
Academic Press, Agrios, Plant - 1	Books decided Required (		
and the book of pathology 19	( methodology that Found		
diseases of horticultural plants			
Book: Tree diseases the fruit -2	the reviewer Home ( Sources )		
(Subhi Suleiman)			
Diseases of fruit trees (Hussein			
Diseases of fruit trees (Hussein (Muhammad Al-Arousi			
(mananinaa Ai Ai oasi			
Plant Pathology Journal -3	Books And references		
	Prevailing that recommend With		
	Reports ,it (Magazines scientific		
	(		
	Electronic references, websites		
https://en.wikipedia.org/wiki/Plant_pathology			
https://cropwatch.unl.edu/soybean-			
management/plant-disease			

		•	_
Cours	se name: Insect eco	logy	.1
	0	\ada	2
	Course C	oae	.2
			_
	Semester / y	<u>'</u>	.3
	First semester 202		
date Prepara	tion this the descrip	otion	.4
		202	3/20/8
shape	s the audience Avail	able	.5
	My presen	се	
number hours Academic ( tota	al ) number Units ( to	otal)	-6
	Hours, 3.5 unit	s 5	
name responsible The decision Academ	ic ( if more from nan	ne Me	ntion
	•	and e	mail (
sienaa.m@uokerbala.edu.iq :Name: Pro	of. Sinai Muslim Al-Z	Zarfi E	mail
	:Goal	s Dec	ision
The course presents the most	:Goals Subject S	chola	rship
important concepts related to	_		
insect ecology, the most			
important ongoing interactions			
between living organisms and			
their environment, and the			
impact of these intertwined and			
diverse relationships on each			
other, negatively or positively,			
which led to the dominance of			
some organisms and the decline			
or disappearance of other			
organisms. Thus, the numbers			
of each type of living organisms			
were determined according to			
the specific environmental and			
life factors and became in A			
state of natural balance			
	gies education And	loarni	ina 0
Focus on the most important environi		Icaiii	The
studies that help humans under		etr	ategy
overcome some of their difficulties, whi		อแ	utegy
the life behavior of living org			
	: environment		
Real-life examples: Use real-life ex	-		
studies in The environmental field	-		
environmental effects on living and non-	-living organisms		
	•		

agricultural For Field visits: Organizing field visits -2 environmental research centers to introduce students to practical applications

Electronic learning resources: Providing electronic learning resources, such as videos and interactive ,exercises

:Active learning .3

Group Discussions: Encourage students to discuss and solve problems together

:Continuous evaluation .4

Assignments and Quizzes: Assess students' understanding of insect ecology concepts through .assignments and quizzes

Linking insect ecology to other courses .5

## structure The decision .10

structure The decision .10					
road	road	name Unit or	Outputs	hours	the
Evaluation	Learning	the topic	Learning		week
			required		
Daily	Lectures	History and	Understand	5	1
paper		Studies of	the		
exam		Ecology	importance of		
		(Introduction)	studying		
		History of	insect ecology		
		ecology and	.broadly		
		environmental	_		
		classification			
Daily	Lectures	The	Insect rearing	5	2
paper	Laboratory	environmental	and	,	-
exam	practical	factors	propagation		
	application	determining	within specific		
		the growth	environmental		
		and	conditions -		
		reproduction	Insect rearing		
		of insects	(a) Phased		
			rearing -		
			Continuous		
			rearing -		
			Internal		
			rearing rooms		
			Tools and -		
			equipment for		
			the insect		
			rearing		
			. laboratory		

Practical	Lectures	Factors that	Identify the	5	3
tests		helped spread	most		
		insects	important		
			environmental		
			factors that		
			play a role in		
			the		
			distribution of		
			insects in		
			.nature		
practical	Lectures	Vital factors	Identifying the	5	4
test			most		
			important		
			biological		
			factors that		
			determine the		
			so-called		
			natural		
			balance and		
			the vital		
			balance of		
			insects.		
			Among these		
			factors,		
			competition		
			stands out On		
			food as a		
			factor		
			influencing		
			the life of		
			. insects		
practical	Lectures	Relationships	Students		
test	Lectures	between	become	5	5
เธรเ		species and	acquainted		
		within a	with the		
		species			
		species	relationships between		
			species and within a		
			single species		
			by identifying		
			them		
nroctica!	Lasturas	Einet teet	.practically		
practical	Lectures	First test	First test	5	6
test	1 4	1	lugget as subset	_	_
practical	Lectures	Insect	Insect rearing	5	7
test	Video	reproduction	and		
		ability	propagation -		
			Insect rearing		
			methods (a)		

			Phased		
			rearing -		
			Continuous		
			rearing -		
			Internal		
			rearing rooms		
			Tools and -		
			equipment for		
			the insect		
			rearing		
			laboratory.		
			Steps for		
			rearing		
			insects		
practical	Lectures	Construct life	Providing	5	8
test	Video	tables	students with		
			complete		
			information		
			on how to		
			construct life		
			) .tables		
			Building C D E		
			L Life For		
			insect Under T		
			The influence		
			of		
			environmental		
			conditions		
			. ( specific)		
practical	Lectures	Natural	It is known as	5	9
test	Video	selection and	the theory of		
		balance natural	natural		
			selection		
practical	Practical	Host selection	Introducing	5	10
test	views	& host	students to		
		specificity	field		
		op comenty	application ,		
			taking		
			samples from		
			fields , and		
			diagnosing		
			existing types		
			of insects,		
			predators, and		
			. parasites		
practical	Practical	Population	Understand	5	11
test	views	Dispersal	the most		
		Distribution	important		
		&Aggregation	methods for		
		GASSI ESCUOII	estimating		
<u> </u>			559		

practical test		Second test	insect infestation percentages together Examples of how to . calculate it Second test	5	12
practical test	Practical views	control and veterinary ? system	Learn about estimating damage and losses caused by insects: examples of estimating plant damage caused by insects - general methods of how insects .infect plants	5	13
practical test		Third test	Third test	5	14
practical test	Lectures	General Review	General Review	5	15

evaluation The decision .11		
Theoretical semester exams (30%) - Practical semester exams (15%) -		
Daily practical exams (5%) - Practical fin	al exam (20%) - Theoretical	
	.(30%) final exam	
	Sources Learning .12	
	And teaching	
Insect Ecology book - 1	Books decided Required (	
Insect ecology book 1984	( methodology that Found	
Basics of insect ecology-2	the reviewer Home (	
Muhammad Ali Muhammad	( Sources	
Arab Book House Library	-	
Insect Ecology Journal -3	Books And references	
	Prevailing that	
	recommend With it	

	,Magazines scientific) ( Reports
https://en.wikipedia.org/wiki/Insect_ecology	Electronic references,
https://www.noor-	websites
book.com/tag/%D8%B9%D9%84%D9%85-	
%D8%A8%D9%8A%D8%A6%D9%87-	
%D8%A7%D9	
%84%D8%AD%D8%B4%D8%B1%D8%A7%D8%AA	

:code	pest	grated	The fou stage	rth	Mandatory (essential)		
Number of units: 2	Pra	Planned teaching hours					
	Description of the curriculum						
in terms of ava environment a wealth. Return	Introducing students to strategies Integrated pest management in terms of available programs and modern trends to preserve the environment and biological enemies and protect farmers and their wealth. Return to natural control (biological, agricultural, mechanical) and other control methods that preserve the environment.						
Introducing st terms of availa environment a .wealth	Learning Outcomes						
Integrated pes pest managen Abdel-Baqi Mu Ahmed. 4. Bio Fouad Sayed	Methodical book						
Final theoretica I exam	Final practical test	Daily theoretic al tests	Practical quarterl y tests	Theor etical semes ter tests	Semester grades		
%50		%5		%45			

## **Threads**

Numb	Article	Numb		
er	The	er	Article	The
Hours	process	Hours	Theory	week
	•	2	pest control management , a historical overview of the stages of its development	1
		2		2
		2	Types of pests and the losses they cause to various agricultural crops	3
		2		4
		2	The basic elements of integrated management programs, community, ecosystem, pest, and their interrelationship	5
		2		6
		2	sampling programs , monitoring, and continuous pest forecasting	7
		2		8
		2	pest management , their types, methods of use , and times of use	9
		2		10
		2	The role of plant resistance in pest management, its benefits, resistance mechanism, physiological foundations of plant resistance, inheritance of resistance, horizontal resistance, vertical resistance, genetic engineering, its advantages, difficulties facing the future of plant resistance	11
		2		12
		2	The role of biological resistance in pest management, the use of parasites and insect predators, the use of insect-pathogenic microorganisms, the use of pathogenic plant pathogens .against bushes	13
		2		14

2	behavioral resistance in pest management, its benefits,	
	determinants, visual means, including sticky traps and their	15
	types, reflective covers, light traps, auditory aids, and olfactory aids	

	Cause Name		
	Course Name .1	L	
	theoretical viruses Course Code .2		
	Course Code .2	2	
	Compostory Lyrony	•	
The fee	Semester / year .3		
	irth stage, the second seme		
date Prepar	ration this the description .4		
	24_4_2		
shape	es the audience Available .5	5	
	My prese		
number hours Academic ( to	tal)number Units(total) .6	5	
	:Number of units - hours75		
name responsible The decision	•		
	Mentionsed ) And er	mail	
aqeel.n@uokerbala.edu.uk Pro	f. Dr. Aqeel Nazzal Berber		
	Goals The decis	sion	
Introducing students to the importance of viruses that infect plants, the losses resulting from their infection, and methods of resisting them and reducing .their damage	Goals Subject Scholars	ship	
Strat	legies education And learnin	g .9	
		The	
Plant Viruses aims to enhance students'	understanding of the <b>strat</b>	egy	
basics of plant viruses and their effects or	n crops, in addition to		
developing their skills in recognizing sym	ptoms, diagnosis and		
: prevention of viral diseases. Th	is can be achieved by		
•	-		
Employing interactive curricula: encouragii	ng discussions and 1.		
	interactive activities that help students understand the interaction		
of viruses with plants, their methods of transmission, and their			
. consequences			
	. consequences		
Practical application: Providing practical loan	ning apportunities ?		
Practical application: Providing practical lear	•		
such as field visits and practical laboratories	to enhance students'		
such as field visits and practical laboratories	•		
such as field visits and practical laboratories . understanding o	to enhance students' f theoretical concepts		
such as field visits and practical laboratories . understanding o  Focus on research: Encourage students to o	to enhance students' f theoretical concepts conduct small-scale 3		
such as field visits and practical laboratories . understanding o	to enhance students' f theoretical concepts conduct small-scale 3		
such as field visits and practical laboratories . understanding o  Focus on research: Encourage students to o research on plant viruses to enhance their s	to enhance students' f theoretical concepts conduct small-scale 3		

			structure Th	ne decis	ion .10
road	road	name Unit or	Outputs	hours	the
Evaluation	Learning	the topic	Learning		week
			required		
Tests	theoretical	Virology	A historical	5	1
practical)	practical		overview of the		
daily / /			emergence and		
(quarterly			development of virology		
Tests	theoretical	Features of	The most	5	2
practical)	practical	viruses	important		_
daily / /	practical	VII 4000	characteristics		
(quarterly			that distinguish		
(4			viruses from		
	41 41 1		other organisms		
Tests	theoretical	Economic	Economic	5	3
practical)	practical	importance	importance of viral plant		
daily / /			diseases		
(quarterly	theoretical	classification		_	
Tests		ciassification	Naming and classifying	5	4
practical)	practical		viruses		
daily / /			Viidooo		
(quarterly Tests	theoretical	Virus	Chemical	-	_
practical)		installation	structure of	5	5
daily / /	practical	iiiStaiiatioii	viruses		
(quarterly					
Tests	theoretical	Drosophila	Morphological	5	6
practical)	practical	viruses	characteristics		U
daily / /	practical	VIII GOOG	of viruses		
(quarterly					
Tests	theoretical	Virus	Virus infection,	5	7
practical)	practical	transmission	infection, and		_
daily / /	practical		transmission		
(quarterly			within plant		
	41 41 1		tissues	_	
Tests	theoretical	Doubled	Viruses multiply	5	8
practical)	practical				
daily / /					
(quarterly Tests	theoretical	Viral infection	Mixed infection	-	•
practical)		viral illiection	with viruses and	5	9
daily / /	practical		their effects on		
(quarterly			plants		
Tests	theoretical	Symptoms of	Symptoms of	5	10
practical)		viral diseases	external and	5	10
daily / /	practical	Tildi digedgeg	internal viral		
(quarterly			plant diseases		
Tests	theoretical	Spread of the	Methods of	5	11
practical)	practical	virus	transmission		**
p. actioui)	practical	TII US			

daily / /			and spread of		
(quarterly			plant viruses		
Tests	theoretical	Diagnosis	Diagnosis of	5	12
practical)	practical		plant viruses		
daily / /	-				
(quarterly					
Tests	theoretical	Resistance to	Resistance to	5	13
practical)	practical	viral diseases	viral diseases		
daily / /					
(quarterly					
Tests	theoretical	viral diseases	The most	5	14
practical)	practical		important		
daily / /	•		viruses that		
(quarterly			infect vegetable		
(4)			crops		
Tests	theoretical	viral diseases	The most	5	15
practical)	practical		important		
daily / /			viruses that		
(quarterly			infect field crops		
, ,					
	1			I	

## evaluation The decision .11

It relies on adopting comprehensive educational strategies that include theoretical and practical aspects to understand plant viruses and their effects on crops. The : following elements may be included in the course evaluation

Assessing student understanding: Determine the extent to which students 1. understand basic concepts such as the classification of plant viruses, their behavior, . modes of transmission, and their effects on plants

Evaluation of practical skills: Evaluation of students' ability to recognize 2. symptoms of viral diseases, diagnose them, and apply prevention and control . measures

Performance evaluation: Evaluating students' performance in solving problems 3.

. related to plant viruses and providing practical solutions

Evaluation of research projects: Evaluation of students' ability to implement 4.

. small research projects related to the analysis and study of plant viruses

	, ,
	Sources Learning And .12
	teaching
Qasim, Nabil Aziz Qasim. 2011. Plant viruses. University of Mosul, Ministry of Higher Education and .Scientific Research	Books decided Required ( ( methodology that Found

Qasim, Nabil Aziz Qasim. 2011. Plant viruses. University of Mosul, Ministry of Higher Education and .Scientific Research	the reviewer Home ( Sources )
	Books And references Prevailing
	that recommend With it
	( Reports ,Magazines scientific)
	Electronic references, websites

			Cou	rse Name	.1	
Storage pests						
			Cou	rse Code	.2	
			Semes	ter / year	.3	
			First seme	ster / 202	3-2024	
		date Prepar	ation this the de	scription	1 .4	
				2	023-9-1	
		shape	es the audience	Available	.5	
		•		My pro	esence	
ı	number hour	s Academic ( tot	al ) number Uni	s (total)	.6	
		·	hours - 3	,5 units 5	<b>,</b>	
na	me responsi	ible The decision	Academic ( if r	nore from	name	
	Mentionsed ) And email					
mushtak.t@uokerbala.edu.iq Prof. Mushtaq Talib Muhammad Ali						
	Goals The decision					
Pro	Providing students with basic recognition and Goals Subject					
		out the most impo	-	Scho	larship	
		are infected during				
-	period in stores of grains and storable foodstuffs, and . identifying ways to protect and combat them					
Strategies education And learning .9						
- Gaining	experience, s	kill, and practical	ability in detection	1	The	
About	warehouse pes	st infestations.	·	st	trategy	
	,	g the ability to dist	inguish between			
stored i		• 1• • 4•	4. 11	,		
_	0	periodic inspection als stored in silos a	•	ıa		
-	• /	Such as heat and o	0	nd		
_		vay from the use o				
		<u> </u>	structure		ion .10	
road	road	name Unit or	Outputs		the	
Evaluation	Learning	the topic	Learning		week	
		-	required	I		
Daily	Lectures	Common	An explanation	5	1	
paper		methods of	of the mos	t		
test		storing grains in	commor	1		
		Iraq	methods of	F		

Signs of damage

to stored grains

types of warehouse pests

due to their infection with

Daily

paper test Lectures

storing grains

Students' knowledge of the most

important

signs of

5

2

Daily paper test	Lectures	Direct and indirect damage to grains as a result of their infestation with warehouse insects and comparing them to field insect damage to grains .in the field	spoilage of stored grains Informing students about the nature of direct and indirect damage to grains	5	3
Oral test	Lectures	Groups of insects of stored materials and their basic divisions	Identify the most important insect groups of stored material insects	5	4
Oral test	Lectures	Environmental and adaptation of warehouse insects, and a study of some environmental factors and their relationship to warehouse . insects	Clarifying the environmental impact and adaptability of stored insects	5	5
First test Paper test	evaluation Lectures	First test  Nutritional preference of grain insects and stored materials and its most important indicators in the warehouse environment	First test Understanding the mechanism by which insects prefer one food to another	5	7
practical test	Lectures	Methods of controlling warehouse insects in general	Explaining the most important methods for combating warehouse insects	5	8
Oral test	Lectures	Traditional methods and their types, natural and mechanical control,	Explaining traditional methods of control, whether	5	9

biological methods and chemical methods using fumigants and their common types in control, mentioning their ideal characteristics  Paper Lectures test  Paper Lectures funditions for growth Warehouse fungi and the most important types of fungi associated with grains and stored materials  practical Lectures by fungi in warehouses and the most important types of mycotoxins common in grain stores infected with the common types of fungi that produce them. Types of grain bacteria and stored materials prevalent in grain stores  Second evaluation Second test  Oral test  Dialogical methods and mechanical or other
chemical methods using fumigants and their common types in control, mentioning their ideal . characteristics  Paper test  Paper test  Paper test  Damage caused by fungi in warehouses and the most important types of mycotoxins common in grain stores infected with the common types of fungi that produce them. Types of grain bacteria and stored materials prevalent in grain stores  Second test  Coral tes
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types in control, mentioning their ideal characteristics  Paper test  Paper test  Paper test  Paper test  Paper test  Suitable conditions for growth Warehouse fungi and the most important types of fungi associated with grains and stored materials  Practical test  Practical test  Damage caused by fungi in warehouses and the most important types of mycotoxins common in grain stores infected with the common types of fungi that produce them. Types of grain bacteria and stored materials prevalent in grain stores  Second evaluation Second test  Oral test  Lectures  Mites of stored materials  methods of  Mites of stored materials  methods of  Interpretation  of a dream about stored materials
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Paper test  Lectures  Suitable conditions for growth Warehouse fungi and the most important types of fungi associated with grains and stored materials  Practical test  Lectures  Damage caused by fungi in warehouses and the most important types of mycotoxins common in grain stores infected with the common types of fungi that produce them. Types of grain bacteria and stored materials prevalent in grain stores  Second evaluation  Coral test  Lectures  Mites of stored materials  Mites of stored materials  Interpretation of a dream about stored materials  Interpretation  Interpretation of a dream about stored materials  Interpretation of a dream about stored materials
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and stored materials prevalent in grain stores  Second evaluation Second test test  Oral test Lectures Mites of stored materials - types, methods of stored materials  Oral test Second test 5 12
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Second test test  Oral test  Coral test  Description  Mites of stored materials - types, methods of test methods of test methods of test test test test test test test tes
Test Oral test Coral test Oral test Coral te
Oral test Lectures Mites of stored materials - types, methods of materials 13
materials - types, of a dream about methods of stored materials
methods of stored materials
Stored materials
APIPCINO INP
infestation of
stored materials
by mites, and
methods of
control followed
test common types of most important
rodents in grain types of rodents
stores, damage
Calised by mice
caused by mice and rats

practical	Lectures	Practical and	Practical and	5	15
test		field review	field review		

evaluation The decision .11			
Theoretical semester exams (30%) - Practical semester exams (15%) -			
ا Daily practical exams (5%) - Final	oractical exam (20%) - Final		
	. (30%) theoretical exam		
	Sources Learning .12		
	And teaching		
Al-Azzawi, Abdullah Falih and Muhammad Books decided Requ			
Taher Mahdi (1983) Warehouse Insects. Mosul	( methodology that Found		
University Press			
Journal of Stored Products Research	Books And references		
	Prevailing that		
	recommend With it		
	,Magazines scientific)		
	( Reports		
https://www.sciencedirect.com/journal/journal-	Electronic references,		
of-stored-products-research	websites		

Course name: Vegetable diseases and protected agriculture .1		
	Course	Code .2
	Semester /	=
	First semester 20	23-2024
date Prepar	ation this the descr	iption .4
		2023/25/8
shape	s the audience Ava	ilable .5
	My prese	nce
number hours Academic ( tot	al ) number Units (	total) -6
	Hours, 3.5 un	
name responsible The decision Academ	nic ( if more from na	
		and email (
:Name: Prof. Dr. R	aja Ghazi Abdul Mo	hsen Email
abud	lalmoohsin.rajaa@uok	
		als Decision
The course presents the	:Goals Subject	Scholarship
concepts of diseases that affect		
vegetable crops and ornamental		
plants, the most important		
symptoms and signs of these		
diseases, the organism that		
causes the disease, the		
conditions suitable for the		
spread of the disease, the life		
cycle of the pathogen, and the		
most important methods of		
.resistance		
	egies education An	
Focusing on the most important dise		The
vegetable crops and ornamental p	_	strategy
: combat them environmentally Real-life examples: Using real-life examples and case		
studies in the field of diseases that affect vegetable		
crops and ornamental plants To clarify the effects of		
. pathogens on plants		
Field visits: Organizing field visits to field -2		
And research centers (greenhouses) orchards		
Agricultural education to introduce students to practical .applications		
Electronic learning resources: Providing electronic		
learning resources, such as videos and interactive		
exercises		
	:Active learning .3	

Group Discussions: Encourage students to discuss and solve problems together

:Continuous evaluation .4

Assignments and tests: Assess students' understanding of concepts and diseases that affect vegetable crops and .ornamental plants through assignments and tests

Linking vegetable pathology to other courses .5

## structure The decision .10

structure The decision .10					
road	road Learning	name Unit or	Outputs	hours	the
Evaluation		the topic	Learning		week
			required		
Daily	Lectures	Introduction	Students	5	1
paper		to the most	understand		
exam		important	them		
		diseases	Diseases that		
		that affect	widely affect		
		vegetable	vegetable and		
		and	ornamental		
		ornamental	. plants		
		. plants	. plants		
Daily	Lectures	Diseases of	Providing	-	2
paper	with	the	students with	5	2
exam	Laboratory	Solanaceae	models,		
CXUIII	practical	family:	slides, and		
	application	diseases of	pictures of		
		tomato and	diseases of		
		potatoes in	the		
		open and	Solanaceae		
		protected	family:		
		cultivation	diseases of		
		and	tomato and		
		methods of	potatoes in		
		combating	open and		
		and	protected		
		reducing	agriculture,		
		. them	along with . field visits		
Practical	Lectures	Open and	Identify the	5	3
tests	Lectures	protected	most	3	3
10313		diseases of	important		
		eggplant,	environmental		
		pepper, and	factors that		
		tobacco,	play a role in		
		and	the		
		methods of	distribution of		
		controlling			

				T	
		and	insects in		
		reducing	.nature		
		. them			
practical	Lectures	The most	Identifying the	5	4
test	Video	important	most		
		diseases	important		
		that affect	models,		
		cucurbits in	slides, and		
		protected	pictures of		
		agriculture	exposed and		
		and their	protected		
		control and	diseases of		
		reduction	eggplant,		
			pepper, and		
			tobacco, with		
			. field visits		
practical		First test	First test	5	5
test		1 01 1001	1 01 1001		,
practical	Lectures	The most	Identify the	5	6
test	with field	important	most	3	O
test	observations	diseases	important		
	ODSEI VALIOIIS	that affect	diseases		
		plants of	Cruciferous		
		the	family plants		
		Cruciferous	through signs		
		family and	and the most		
		_			
		ways to combat and	important methods of		
		reduce them			
		reduce them	combating		
	1 4	The meet	. them		
practical	Lectures	The most	Providing	5	7
test	Video	important	students with		
		diseases	models,		
		that affect	slides, and		
		plants of	pictures of the		
		the	most		
		Compositae	important		
		family and	diseases that		
		ways to	affect plants		
		combat and	of the		
		reduce them	Compositae		
			family, along		
			with field		
			visits		
practical	Lectures	The most	Providing	5	8
test	Video	important	students with		
		diseases	models,		
		that affect	slides, and		
		plants of	pictures of the		
		the	most		
			531		

	Г				
		leguminous	important		
		family and	diseases that		
		ways to	affect plants		
		combat and	of the legume		
		reduce them	family, along		
			with field		
			. visits		
practical		Second test	Second test	5	9
test					
practical	Field and	The most	Introducing	5	10
test	practical	important	students to		
	observations	diseases	their		
		that affect	importance		
		plants of	Diseases that		
		the Narcissi	affect plants		
		family and	of the Narcissi		
		ways to	family through		
		combat and	models,		
		reduce them	slides, and		
			pictures,		
		•	along with		
			. field visits		
practical	Practical	The most	Providing	5	11
test	views	important	students with	3	11
1031	Vicws	diseases	models,		
		that affect	slides, and		
		plants of	pictures of the		
		the mallow	most		
		family and	important		
		ways to	diseases that		
		combat and			
			affect plants		
		reduce them	of the mallow		
		•	family, along		
			with field		
m ma c4! c c !	1 4	The meet	. visits	_	
practical	Lectures	The most	Distinguish	5	12
test	Field with	important	the most		
	observations	diseases	important		
		that affect	diseases of		
		ornamental	ornamental		
		plants (Part	.plants		
		One) and			
		ways to			
		combat and			
		reduce them			
practical	Practical	The most	Learn about	5	13
test	views	important	estimating		
		diseases	damage and		
		that affect	losses		

		ornamental plants (Part Two) and ways to combat and reduce them	resulting from injuries to ornamental .plants		
practical test	Lectures with practical and laboratory application	The most important nursery diseases and ways to control and reduce them	Identify the causes of various nursery diseases and the most important modern methods for controlling and reducing disease .causes	5	14
practical test		Third test	Third test	5	15

evaluation The decision .11			
Theoretical semester exams (30%) - Practical semester exams (15%) -			
Daily practical exams (5%) - Practical final e	xam (20%) - Theoretical		
	.(30%) final exam		
	Sources Learning .12		
	And teaching		
and Academic Press, Agrios, Plant pathology 19 - 1	Books decided		
the book of diseases of horticultural plants	Required (		
	methodology that		
	( Found		
Book: Practical guide to vegetable diseases -2	the reviewer Home (		
and protected agriculture	( Sources		
Discours of average views			
Vegetable diseases book (Muhammad Ayoub)	Diseases of greenhouse plants		
Plant Pathology Journal -3 Books And			
i lune i umology sournar o	references Prevailing		
	that recommend With		
	it (Magazines		
( Reports ,scientific			

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