

Republic of Iraq
Ministry of Higher Education & Scientific Research
Supervision and Scientific Evaluation Directorate
Quality Assurance and Academic Accreditation

Academic Program Specification Form For The Academic

University: Al anbar
College : Agricultural
Department : Field crops
Date Of Form Completion : ٢٠٢٠/٦/١

Dean's Name

Prof. Dr. Idham Ali Abed

Date : / / 2021
Signature

Dean's Assistant for
Scientific Affairs

Assist. Prof. Dr. Mohammed Hamdan Edan

Date : 1/6/2021
Signature

Head of Department

Assist. Prof. Dr. Osama Hussein

Date : 1/6/2021
Signature

Quality Assurance And University Performance: Dr. Omar Hazim Ismail

Manager Date : 6/1/2020
Signature

Academic Program Description Form

**Review the performance of higher education institutions
(review of the academic program))**

The academic program description provides this program and the learning outcomes for the student to achieve general evidence if he or she has achieved maximum opportunities available. It is accompanied by a description of each course within the program

Educational Institute	University of Anbar College of Agriculture
Department	Field Crops
Academic program	Agricultural sciences
Bachelor Degree	BSc in Agricultural sciences
Study program	By Semester
Accredited accreditation program	
External Effects	
Description Date	2020-2021

Academic program objectives

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

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

1. Required learning outcomes, teaching and learning methods, and assessment

1.10 Knowledge and understanding: .

- The student has the ability to know and understand the principles, theories, and fundamentals in agricultural engineering.
- The student has the ability to understand modern and advanced scientific topics in the field of agricultural engineering.
- The student should be able to understand mathematics and equations for major studies.
- Have a student able to solve engineering problems and design agricultural parts and the foundations of their theoretical applications.
- The student shall be able to understand the basics of the laboratory devices that are used in agricultural examination.

Methods for assessing knowledge and understanding:.

- Written examinations monthly and quarterly.
- Quizzes.
- Homework.
- Writing scientific reports.

Teaching and learning methods:.

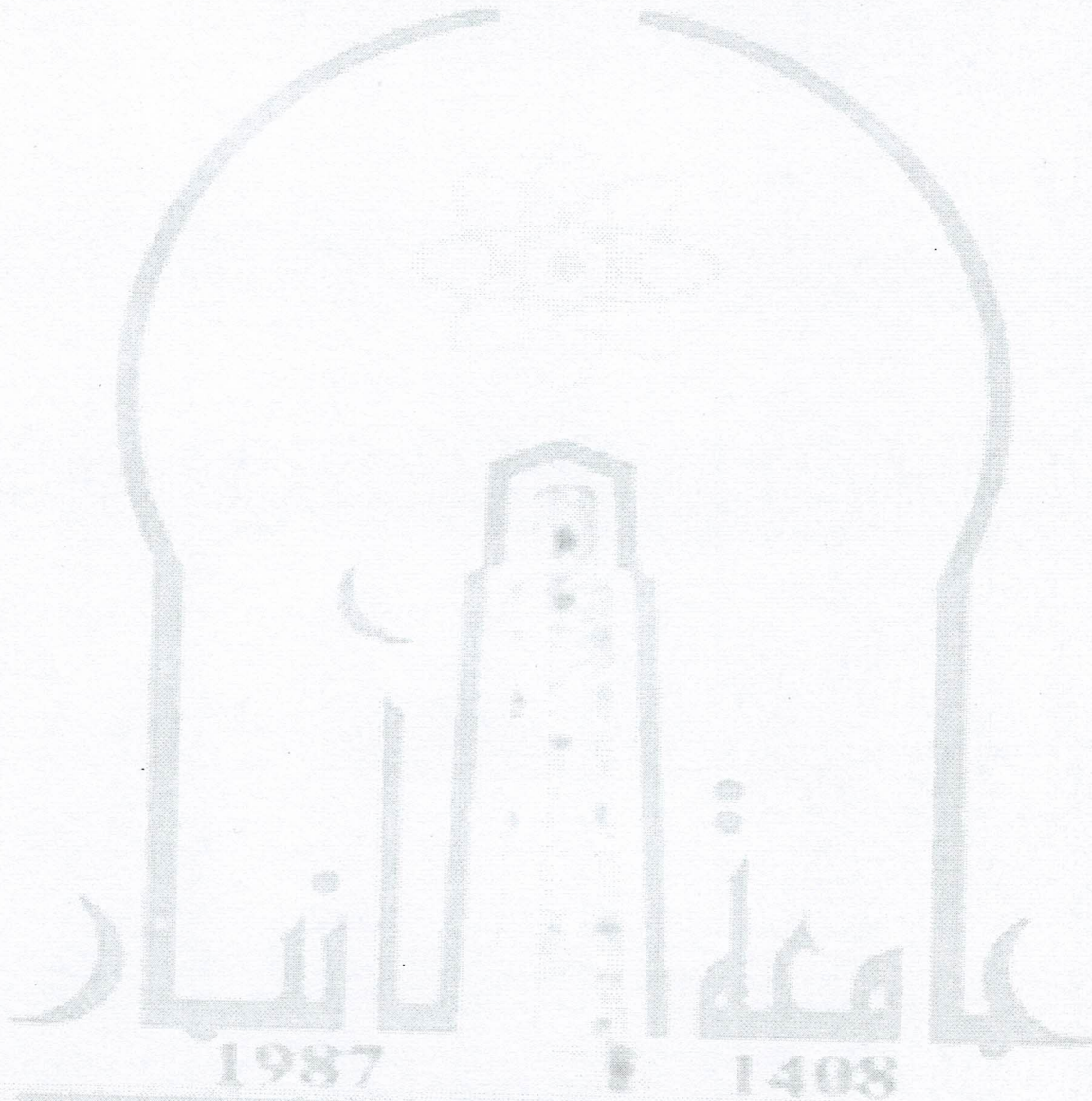
- Daily theoretical lectures.
- practical lectures in laboratories.
- Graduation projects for students of the completed stage and discussing them.

B. Subject-specific skills

Thinking skills:

- Description and analysis of agricultural applications.
- Analyze problems related to agricultural engineering and discussing the possible solutions
- Using computer programs for agricultural engineering to analyze these problems.

Program Description



Professional and practical skills:

- Preparing engineering designs for agricultural systems

Analyzing and discussing engineering test results for use in design and evaluation processes.

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

- The ability to elicitate the results of the tests and their effects from the test.

First				1.11
				Year
Course Description	Couse Name	Course Code	Class Hours	Units
1st Semester \Core	Field Crops	AFC1911	2	3.5
1st Semester \Core	Organic chemistry	AFC1912	2	3.5
1st Semester \Core	Plant Science	AFC1913	2	3.5
1st Semester \Core	Plane surveying	AFC1914	2	3
1st Semester \Core	Mathematics	AFC1915	2	3
1st Semester \Core	Engineering Drawing	AFC1916	2	1.5
1st Semester \Core	Human Rights	AFC1917	2	3.5
2nd Semester \Core	Biochemistry	AFC1918	2	3.5
2nd Semester \Core	English Language	AFC1919	2	1
2nd Semester \Core	Principles of Field Crops	AFC19120	2	3.5
2nd Semester \Core	Principles of Soil	AFC19121	2	3.5
2nd Semester \Core	Principles of Animal Production	AFC19122	2	3.5
2nd Semester \Core	Computer Skills	AFC19123	-	3
Total			24	39.5
Second Year				2.11
Course Description	Couse Name	Course Code	Class Hours	Units
1st Semester \Core	Principles of Horticulture	AFC 1921	2	3.5
1st Semester \Core	Agricultural Mechanizations	AFC1922	2	3.5
1st Semester \Core	Agricultural guidance	AFC1923	2	2
1st Semester \Core	Principles of Food Industries	AFC1924	2	3.5
1st Semester \Core	Soil Fertility	AFC1925	2	3.5
1st Semester \Core	Plant classification	AFC1926	2	3.5
1st Semester \Core	Computer Skills	AFC1927	-	3.5
1st Semester \Core	Biology	AFC1928	2	3.5
2nd Semester \Core	Oil & Sugar Crops	AFC1929	2	3.5
2nd Semester \Core	Principles Of Statistics	AFC19220	2	3.5
2nd Semester \Core	Plant ecology	AFC19221	2	3.5
2nd Semester \Core	Irrigation and drainage	AFC19223	2	3.5
2nd Semester \Core	Freedom and democracy	AFC19224	2	1
2nd Semester \Core	Arabic Language	AFC19225	1	1
2nd Semester \Core	English Language	AFC1919	1	1
Total			28	43.5

Third Year					۳.۱۱
Course Description	Couse Name	Course Code	Class Hours	Units	
1st Semester \Core	Plant Genetics	AFC1931	2	3.5	
1st Semester \Core	Design & Experiment analysis	AFC1932	2	3.5	
1st Semester \Core	Mechanizations & Field crops Machinery	AFC1933	2	3.5	
1st Semester \Core	Field crops Insect	AFC1934	2	3.5	
1st Semester \Core	Salinity and reclamation	AFC1935	2	3.5	
1st Semester \Core	Forage Crops	AFC1936	2	3.5	
1st Semester \Core	Fiber Crops	AFC1937	2	3.5	
2nd Semester \Core	Cereal Crops	AFC1938	2	3.5	
2nd Semester \Core	Legume Crops	AFC1939	2	3.5	
2nd Semester \Core	Field Crops diseases	AFC19310	2	3.5	
2nd Semester \Core	Bee Breeding	AFC19311	2	3.5	
2nd Semester \Core	Computer Skills	AFC19312	2	3.5	
2nd Semester \Core	Seed Technology	AFC19313	2	3.5	
Total			26	45.5	
Fourth Year					۴.۱۱
Course Description	Couse Name	Course Code	Class Hours	Units	
1st Semester \Core	Medicinal Plants	AFC1941	2	3.5	
1st Semester \Core	Plant physiology	AFC1942	2	3.5	
1st Semester \Core	Weed Biology	AFC1943	2	3.5	
1st Semester \Core	Field Crops Management	AFC1944	2	3.5	
1st Semester \Core	Molecular Genetics	AFC1946	2	3.5	
1st Semester \Core	Landfarming	AFC1945	2	3.5	
1st Semester \Core	Project Graduation	AFC1947	2	1.5	
2nd Semester \Core	Plant Breeding	AFC1948	2	3.5	
2nd Semester \Core	Growth Regulators	AFC1949	2	3.5	
2nd Semester \Core	Weed Control	AFC19410	2	3.5	
2nd Semester \Core	Seminars	AFC19411	2	3.5	
2nd Semester \Core	Pasture Management	AFC19412	2	3.5	
2nd Semester \Core	Environmental Stress	AFC19413	2	3.5	
1st Semester \Core	Project Graduation	AFC19414	2	1.5	
Total			28	45	

1. Personal development planning

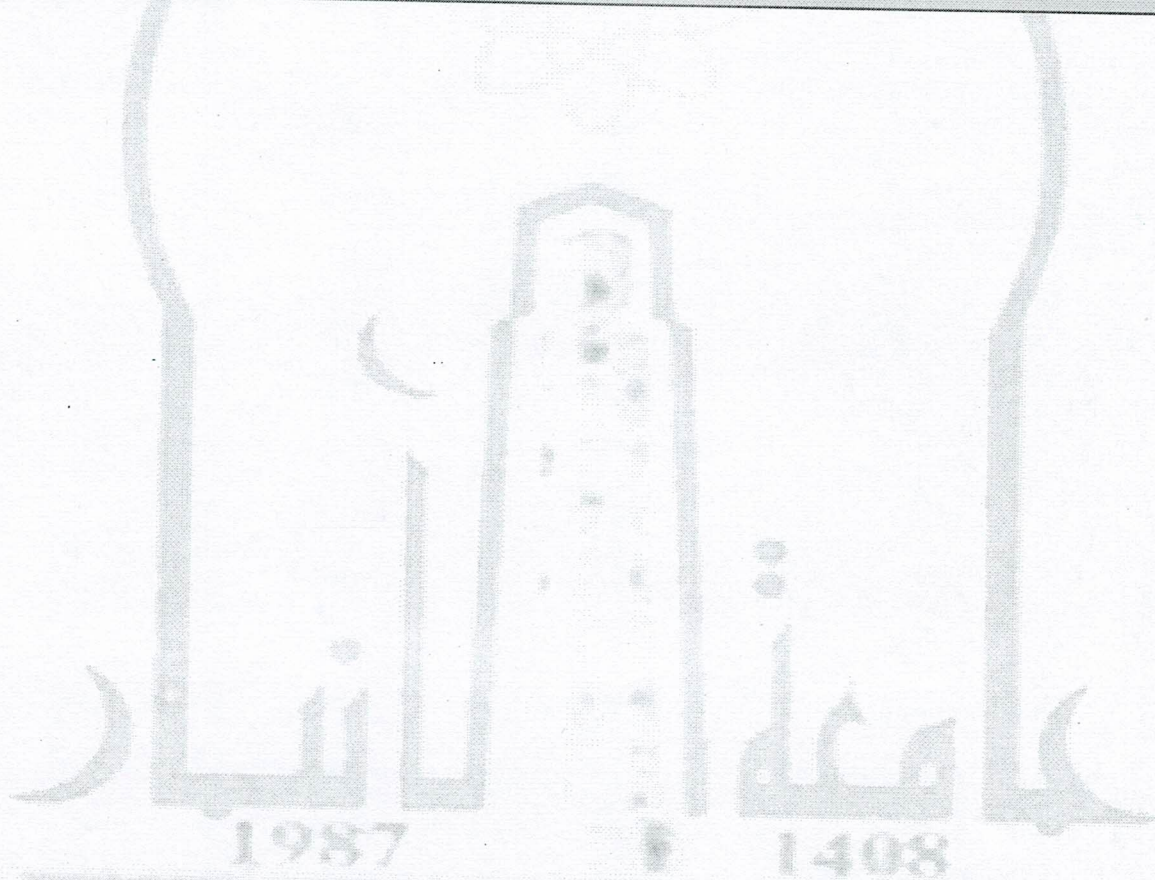
- Admission Criterion (laying down regulations related to college or institute enrollment)
- Approval of admission requirements for students according to the regulations of the
- Ministry of Higher Education and Scientific Research (central admission)
- To pass the personal interview of the department. •
- Pass for a medical examination.
- High school average.
- The absorptive capacity of the college.

2. The most important sources of information about the program

Market needs.

Local trends to the governorate.

Studies and questionnaires.




Biochemistry	AFC1918	Core																		
English Language	AFC1919	Core																		
Principles of Field Crops	AFC19120	Core																		
Principles of Soil	AFC19121	Core																		
Principles of Animal Production	AFC19122	Core																		
Computer Skills	AFC19123	Core																		
2nd Year			A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D2	D3	D4		
Principles of Horticulture	AFC 1921	Core																		
Agricultural Mechanizations	AFC1922	Core																		
Agricultural guidance	AFC1923	Core																		
Principles of Food Industries	AFC1924	Core																		
Soil Fertility	AFC1925	Core																		
Plant classification	AFC1926	Core																		

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Computer Skills	AFC1927	Core	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D2	D3	D4
Biology	AFC1928	Core																
Oil & Sugar Crops	AFC1929	Core																
Principles Of Statistics	AFC19220	Core																
Plant ecology	AFC19221	Core																
Irrigation and drainage	AFC19223	Core																
Freedom and democracy	AFC19224	Core																
Arabic Language	AFC19225	Core																
English Language	AFC1919	Core																
3 rd Year			A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D2	D3	D4
Plant Genetics	AFC1931	Core																
Design & Experiment analysis	AFC1932	Core																
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Field Crops diseases	AFC19310	Core																			
Bee Breeding	AFC19311	Core																			
Computer Skills	AFC19312	Core																			
Seed Technology	AFC19313	Core																			
	4th Year		A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D2	D3	D4			
Medicinal Plants	AFC1941	Core																			
Plant physiology	AFC1942	Core																			



 Agricultural University, Patancheru, Hyderabad - 1408



Course description form

Reviewing the performance of higher education institutions (review of the academic program)

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve Demonstrating whether he has made maximum use of available learning opportunities. It must be linked to the descriptionthe program.

1. Educational Institution	Agriculture College/ University of Anbar
2. University Department / Center	Field crops department
3. Course name/code	Forage crops
4. Programs included in it	1. Field crops 2. Animal production
5. Forms of attendance available	1. Electronic classes 3. Classrooms
6. Season/Year	Fall and Spring Semester /2020-2021
7. Total school hours	75
8. The date this description was prepared	21/09/2021
9. Course objectives	
a. Introducing the importance of forage crops	
b. Studying the ways to improve fodder production, storage and utilization	
c. Studying the necessary ways to improve forage production, storage and utilization	

10.Learning outcomes and methods of teaching, learning and assessment

A. Cognitive goals

1. Providing students with theoretical and practical scientific knowledge on the subject of forage crops
2. Students benefit from practical experiences in the subject of feed.

B - The skill objectives of the course

1. Providing students with the required skills in field management and its impact on the sustainability of preserving the environment.
- 2- Increasing students' awareness in identifying recent trends in the production of forage crops

C. Teaching and learning methods

1. The method of giving lectures
2. Explanation, interpretation, and linking method .
3. Explanation method using electronic illustrations

D. Evaluation methods

1. Daily, weekly and monthly exams.
2. Reports

E. Thinking skills

1. Develop and enhance the thinking skill according to the student's ability and move him to a higher level of thinking .
2. Attention: Arousing the attention of students by conducting dialogue and participating in the discussion of opinions and ideas .
3. Response: following up on the student's response and interaction with the material that is being explained theoretically and practically
4. Develop and strengthen the critical thinking strategy in learning

F. Teaching and learning methods

1. Active participation in the classroom is evidence of student commitment and responsibility
2. The semester and final exams are about the commitment and achievement of knowledge and skills of the student

G. Evaluation methods

Conducting exams and exams

H. General and transferable skills related to employability and personal development.

1. Develop students' ability to deal with technology
2. Teamwork Training
3. Develop the student's ability to dialogue and discussion

11. Course structure					
Week	Hours	Required learning outcomes	Unit or topic name	Education method	Evaluation method
1	5	Introduction to forage crops	A historical overview of the beginning and development of forage crops and their importance in human and animal life, taxonomy of forage crops and places of origin	Lectures	Exams
2	5	Legume forage crops	Leguminous forage crops and their importance	Lectures	Exams
3	5	Legume forage crops	Alfalfa, its types, importance, appropriate environment, methods of cultivation, field practice.	Lectures	Exams
4	5	Legume forage crops	Clover, its types, importance, favorable environment, methods of cultivation, field practice.	Lectures	Exams
5	5	Forage crops	Annual Medic, its types, importance, appropriate environment, methods of cultivation, field practice.	Lectures	Exams
6	5	Forage crops	Sweet clover, its types, importance, appropriate environment, methods of cultivation, field practice	Lectures	Exams
7	5	Grass summer forage crops	Sorghum, and Sudan grass its types, importance, appropriate environment, methods of cultivation, field practice.	Lectures	Exams
8	5	Grass summer forage crops	Corn and millet its types, importance, appropriate environment, methods of cultivation, field practice.	Lectures	Exams
9	5	Grass winter forage crops	barley, oats and rye grass, types and varieties, field practice	Lectures	Exams
10	5	Forage crops	Intercropping and agricultural cycles	Lectures	Exams
11	5	Forage crops	Harvesting and storage	Lectures	Exams
12	5	Manufacture of hay and silage	Manufacture of hay and silage by traditional and modern methods, aerobic and anaerobic reactions, compounds resulting from fermentation.	Lectures	Exams
13	5	Toxic substances and compounds	Toxic substances and compounds in forage crops and ways to prevent them	Lectures	Exams

		in forage crops			
14	5	Estimation of forage quality trail	Dry matter, digestibility and protein,	Lectures	Exams
15	5	Estimation of forage quality trail	Estimation of carbohydrates, fiber and ash	Lectures	Exams

12. Infrastructure	
<ul style="list-style-type: none"> ▪ Required readings: ▪ Course books ▪ Other 	<ol style="list-style-type: none"> 1. Forage crops / written by Dr. Muhammad Al-Sayed Radwan and Dr. Abdullah Qasim Al-Fakhri / University of Mosul / 1975 2. Forage crops and pastures / authored by Dr. Ramadan Al-Tikriti and Dr. Hikmat Askar Rumi and Dr. Tawakkol Yunus / University of Baghdad 1981 3. Tropical Forage Legumes. Edit By P.J.Skerman Rome.1977 4. Forage Seed Production. Temperate Species. Edited By D.T.Fairey and J.G.Hampton CAB international.1997.U.K PP420
Special requirements	
Social services, including for example guest lectures, professional training and field studies	

13. Acceptance	
Prerequisites	
Less number of students	
The largest number of students	

Dr. Abdullah M. Saleh



Course description form

Reviewing the performance of higher education institutions ((review of the academic program))

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve
 Demonstrating whether he has made maximum use of available learning opportunities. It must be linked to the description the program

1. Educational Institution	
2. University Department / Center	Field Crops Department
3. Course name/code	Experiment design and analysis
The programs it enters into	Quality Assurance Manual
Available forms of attendance	weekly

season/year	Courses (second course)
Number of hours of study (total)	(30 hours theoretical + 45 practical) (75 hours)
Date of preparation of this description	2020-2021
1. Course objectives: The student will become acquainted with the scientific bases for designing and analyzing experiments, both theoretical and practical	
A- Expand the student's theoretical and practical knowledge	
b- Examine the recent experiments related to the design of experiments.	
To identify the factors and conditions related to statistics and design of experiments	
Knowing the methods of designing experiments, the processes and the circumstances surrounding the research or experiment.	

1. Learning outcomes and methods of teaching, learning and assessment
A- Cognitive goals:
1- Providing students with theoretical and practical scientific knowledge on the subject of designing experiments of all kinds.
2- Students benefit from practical experiences in the subject of designing and analyzing experiments and their relationship to various growth factors and the circumstances surrounding the experiment.



B - The skill objectives of the course:

- 1- Providing students with the required skills in designing experiments and their impact on plant growth and production.
- 2- Increasing students' awareness in identifying recent trends in the design of experiments, which include modern technologies via the computer.
- 3- Teaching students on modern methods of statistics and designing different experiments
- 4- The student deduces the relationship between the circumstances surrounding the experience of the organism and the characteristics that distinguish it from others and how to transfer those

Teaching and learning methods

- 1- The method of giving lectures regarding the theoretical framework of the subject.
- 2- The method of explanation, interpretation and linking.
- 3- Explanation method using electronic means (Data show).
- 4- Using the regular blackboard and the pen to clarify and explain some of the things that need to be clarified to the student.

Evaluation methods

- 1 Weekly exams (quiz) and quarterly and final exams (theoretical and practical).
- 2- Interaction within the lecture.
- 3- Attendance.
- 4- Commitment and discipline in the classroom and laboratory.
- 5- Preparing scientific reports and presenting them with scientific explanations.

C- thinking skills

- 1- Develop and enhance the thinking skill according to the student's ability and move him to a higher level of thinking.
- 2- Attention: Arousing the students' attention through conducting dialogue and participating in the discussion of the opinions, ideas and opinions presented.
- 3- Response: Follow up the student's response and interaction with the material that is being explained theoretically and practically.
- 4- Develop and strengthen the critical thinking strategy in learning

Teaching and learning methods

- 1 Active participation in the classroom is evidence of the student's commitment and responsibility.
- 2- The quarterly and final exams are about the commitment and achievement of knowledge and skills of the student
- 3- The student develops and discusses scientific explanations for the results of his experiments in practice and submits a report on them
- 4- Knows the role of designing experiments in the scientific method and the extent of its spread in Iraq, the Arab world and the world.



Evaluation methods

- 1- Conducting tests and examinations of all kinds.
- 2- The feedback from the students.
- 3- The way of expression through facial features
- 4- Preparing scientific reports and presenting them with scientific explanations

D - General and transferable skills (other skills related to employability and personal development).

- 1- Develop the student's ability to deal with technical means.
- 2- Team work.
- 3- Develop the student's ability to dialogue and discussion .

1. Course Structure

Evaluation method	education method	Unit name / course or topic	Required learning outcomes	hours	Week
Daily and monthly test + scores on activities, reports and attendance	Giving lectures (theoretical and practical) (e-learning and practical attendance)	Introduction to the history of statistics, the first researchers in designing experiments, studying statistical tests	Experiment Design	5	1
		An introduction to the history of statistics, the first researchers in statistics and experimental design,	Experiment Design	5	2
		The importance of designing experiments for the researcher	Experiment Design	5	3
		Sources of difference in the design of experiments	Experiment Design	5	4
		Completely randomized CRD isometric design	Experiment Design	5	5
		Solve iso-repeated whole-randomized CRD exercises	Experiment Design	5	6
first month exam		Completely randomized CRD design with unequal replicates.	Experiment Design	5	7
		Solve the exercises of a complete randomized CRD isometric replication design.	Experiment Design	5	8
		Randomized complete block design (RCBD)	Experiment Design	5	9
		RCBD Randomized Complete Block Design Exercises	Experiment Design	5	10



		Relative efficiency of the RCBD design.	Experiment Design	5	11
		Missed View Rating	Experiment Design	5	12
		latin square design	Experiment Design	5	13
		split experiences	Experiment Design	5	14
second month exam		General Review	Experiment Design	5	15

1. Acceptance

1. Infrastructure

		1	<ul style="list-style-type: none"> ▪ Required readings: ▪ Course Books ▪ other
Statistical methods book for agricultural research	Dr. Khaled Mohamed Daoud Dr. Zaki Abed Yas		
Agricultural experiment design and analysis book	Dr.. Humble Mahmoud Al-Rawi Dr. Abdul Aziz Muhammad Khalaf Allah		
Book of applications in the design and analysis of experiments	Dr.. Medhat Majeed Al Sahoki Dr.. Karima Mohamed Wahib		
Arab and foreign scientific journals Online lectures			
		Special requirements	
		Social services (including guest lectures, professional training and field studies)	
		Prerequisites	
		Less number of students	
		The largest number of students	

Anas Ibrahim Hasan
Lecturer Of Analysis And Experimental Design
Department Of Field Crops

Ministry of Higher Education and Scientific Research
Scientific Supervision and Evaluation Authority
Department of Quality Assurance and Academic Accreditation
International Accreditation Department



Course Description Form

Reviewing the performance of higher education institutions ((review of the academic program))

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve Demonstrating whether he has made maximum use of available learning opportunities. It must be linked to the description the program.

1. Educational Institution	University of Anbar - College of Agriculture
2. University Department / Center	Field Crops Department
3. Course name/code	field crops management
4. Programs in which it enters	
5. Forms of attendance available	electronic
6. Semester/year	2021-2022
7. Number of hours of study (total)	75
8. Date this description was prepared	2/10/2021
<p style="text-align: right;">:Course objectives .1</p> <p>Determining the human role in providing food and population increase and -1 .the consequences of increasing the food gap, and productivity factors</p> <p>Research on the management of crops scattered in Iraq and the world and the -2 .benefit from them and the adaptation of crops in their broad and narrow sense</p> <p>Knowledge of the management of the field crops before and after planting -3</p>	

.and the various agricultural processes accompanying them

Shed light on the types of irrigation canals and irrigation methods and reduce -4
 .irrigation losses

Calculation of plant density and seed quantities according to the crop, the -5
 role of plant density in intercepting light and increasing

Clarifying the role of the main, secondary and rare fertilizers in growth, -6
 increasing the yield and symptoms of deficiency of elements on the plant, the
 .relationship of the types of elements to metabolic processes

Paying attention to adding soil conditioners - using hemp and green manure -7
 and adding gypsum and agricultural sulfur to repair saline and saline-alkaline
 .soils

Learning outcomes and methods of teaching, learning and - -3
 assessment

A- Cognitive goals

Enabling students to acquire knowledge and understanding of crop -1
 .management science at the local level

Enabling students to acquire knowledge and understanding of crop -2
 .management science at the international level

Enable students to obtain knowledge and understanding of the methods used -3
 in conducting soil servicing, crop and seed environment operations and
 .reclaiming the various saline soils used in the local reality

Enabling students to obtain the knowledge and methods used in the various -4
 .soil tests internationally

Enable students to obtain knowledge and understanding of the basics of -5
 .learning and improving crop management

Applying theoretical information and linking it to the reality of laboratory and -6
 .field work

.The course objectives

Enable students to understand crop management, plant adaptation and -1
 .the spread of field crops around the world

Enable students to conduct soil service operations and various crop -2
 .service operations

Enabling students to develop ways of dealing with the problems of -3

<p>.salinity, jungle and lack of moisture</p> <p>Thinking and analysis skills that enable him to reach the application of -4 different irrigation methods, fertilization, seed grading and seed .environment</p> <p>Skills of use and self-development that enable him to compete with others -5 in the labor market, to apply for postgraduate studies, and to take tests .carried out by local, international and regional bodies</p>
Teaching and learning methods
<p>Providing students with the basics and additional topics related to previous -1 .learning outcomes of skills, to solve scientific problems</p> <p>Asking the students, during the practical laboratories and the field field side, -2 to arrive at conducting many plant tests such as methods of planting, slipping, .grafting, hoeing, soil division and waving</p> <p>Conducting a set of plant and soil tests such as plowing, smoothing, leveling, -3 .fertilization methods, irrigation methods, and by the academic staff</p> <p>Students' participation in the actual examinations -4</p>
Evaluation methods
<p>.Daily exams with multiple-choice questions that require scientific skills - 1</p> <p>.Daily exams with scientific questions - 2</p> <p>.Participation marks for competition questions for academic subjects - 3</p> <p>.Putting grades for homework -4</p>
<p style="text-align: right;">thinking skills</p> <p>Enable students to think and analyze topics related to the intellectual -1 .framework of field crop management</p> <p>Enable students to think and analyze issues related to tackling the problems -2 .of field crop production</p> <p>Enable students to think about how to deal with environmental -3 .conditions and adapt them to increase crop productivity</p> <p>Enabling students to think and analyze to identify the most prominent -4 factors accompanying field crops such as irrigation, fertilization, land .preparation, bushes, and others</p>
Teaching and learning methods
<p>Providing students with the basics and topics related to the outputs of -1 .thinking and analysis</p> <p>Forming a discussion group through theoretical and practical lectures -2 to discuss the topic at hand, which requires thinking, analysis and .conclusion</p> <p>A question for students A set of intellectual questions in the lectures -3 (such as (what, how, and when for specific topics</p> <p>Giving students homework that requires different scientific -4</p>

.explanations .Teaching students how to build ways of thinking and analysis -5
Evaluation methods
.Daily exams with self-solving questions -1 Participation scores for competition and discussion questions related -2 .to the study subject .Specific grades for homework and quick and sudden exams -3
D - General and transferable skills (other skills related to employability (and personal development Verbal communication (the ability to express ideas clearly and confidently -1 (in speech Teamwork (working with confidence within a team work group -2 Investigation analysis (collecting information in a systematic and scientific -3 .way to establish facts and principles as a solution to a specific problem .Written communication (the ability to express yourself clearly in writing -4

Course structure -4

Evaluation method	education method	Unit name / course or topic	Required learning outcomes	hours	Week
Conducting daily and monthly tests through questions about the subject to determine their comprehension.	Conducting the plowing, watching its specifications and judging it after identifying its defects in terms of soil moisture, the size of the soil masses and the distance between the plowing lines.	field crops management	Man and food: food production, population increase, food gap, productivity factors	5	1
	Divide the field and settle for planting the following week. Students can be divided into several groups, each group working together to grow a particular crop.	field crops management	Land service: Plowing, its importance, depth, and its relationship to the growth of different crops, and its role in eliminating jungles, preparing elements, and increasing water conservation in the soil Smoothing: The depth of smoothing and the machines used for the growth of the crop	5	2
	Cultivation of one or more	field crops	Dividing the field: leveling the land and its relationship	5	3

	<p>crops at the same date and plant density using the methods of prose, stripes, and notes, recording observations of growth and occurrence in subsequent weeks, collecting and categorizing data according to each studied trait of the field characteristic s of the plant.</p>	<p>management</p>	<p>to dividing the field and the .area of planting boards</p>		
	<p>Planting a crop on several dates and recording the data to know the effect of the dates.</p>	<p>field crops management</p>	<p>Irrigation Channels: Irrigation systems, nature of irrigation streams and irrigation losses from water according to the method used and the method appropriate to the nature of .the land and the crop</p>	<p>5</p>	<p>4</p>
	<p>Cultivating a crop with several plant densities and recording the data to know the effect of the densities.</p>	<p>field crops management</p>	<p>.Crop service: planting dates and their impact on calculating the thermal units needed for crop growth, light energy and its relationship to planting date, and temperature. The difference in the effect of planting dates</p>	<p>5</p>	<p>5</p>

			for winter and summer crops on changing the date of harvest and the amount of harvest		
	Cultivation of a crop with several doses of nitrogen and recording data to know the effect of nitrogen dose.	field crops management	Plant density and seed quantities according to the crop, the role of plant density in intercepting light and increasing yield, optimal densities of main crops, optimal planting distances for crops planted in lines, and how to calculate plant densities and their relationship to the leaf area guide.	5	6
	Cultivation of a crop with several doses of (NPK) to compare it with nitrogen fertilization only.	field crops management	Fertilization - the role of main, secondary and rare fertilizers in growth, yield increase and symptoms of element deficiency on the plant, the relationship of the types of elements to the metabolic processes in the plant and the synthesis of various plant compounds, naming some elements for the plant, and the optimal quantities for the use of elements.	5	7
	Cultivate a crop and irrigate it with several different irrigations (5 and 10 days), or every week or two,	field crops management	Seeds - seed quality, seed quantities and plant densities and their calculations.	5	8

	and record data on growth to know the role of water in this and record the signs of water deficit.				
	Cultivation of two crops with two factors, one of which is the bush removed manually and the other without removal (although a pesticide can be used for comparison and note-taking).	field crops management	Soil improvers - the use of animal fat and green manure and the addition of gypsum and agricultural sulfur to repair saline and alkaline saline soils and its relationship to the electrical conductivity and pH of the soil solution and the readiness of the elements for the plant, and the equations for estimating the quantities of gypsum and sulfur according to the specifications of soil analysis.	5	9
	Extracting leguminous plants to study bacterial complexity, node size and rhizobia activity	field crops management	Bush control - the most important common bush herbicide in major crops. Fine bush herbicides. Broadleaf herbicides. Pesticides recommended in Iraq to control jungle plants of major crops. jungle election.	5	10
	Each group of students writes down the percentage of insects and diseases	field crops management	Irrigation of crops - the role of water in the dissolution of elements, absorption and plant growth. The number of irrigations for the crop and the determination of the	5	11

	and attempts to diagnose them for each planted crop.		depth of irrigation and how to calculate it. Water rations for major crops. Calculating the amount of water needed for the field on the farm.		
	Study of sections of root, stem, flowers, ovaries, pollen grains and embryo sac.	field crops management	Methods and depth of cultivation - scattered cultivation in merrows and terraces and cultivation in lines and its importance to the type of crop. The relationship of the nature of root growth in each method and its reflection on the growth of the crop.	5	12
	Each group of students follows the signs of maturity on the crop and conducts some moisture tests on the seeds and their suitability for harvest.	field crops management	Crop adaptation - temperature, light, quality, intensity and duration, humidity, air	5	13
	Choosing a research topic about managing a specific crop for each student and writing it according to the teacher's direction.	field crops management	Control of diseases and insects - the main insect diseases that affect field crops and how to prevent them before their emergence and control them when they appear and the recommended pesticides in Iraq.	5	14

	<p>Each student presents his report to the students, discusses it and gives it a .grade</p>	<p>field crops management</p>	<p>Plant organs and their functions - plant cell and its organelles, root, stem, leaves, leaf area. Maturity and harvest - how to harvest and the appropriate time for the crop, and estimate the losses from the crop. Storage of the yield - types of stores and storage, storages of seeds and grains and their specifications and storage conditions in them such as temperature, humidity and pesticides, methods of drying the yield in the field and in the store, and titration of moisture in the seeds before .and at storage</p>	<p>5</p>	<p>15</p>
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**The scientific basis for the - 1
management, production and
improvement of field crops. Mr. Dr.
Iyad Hussein Al-Muaini and Prof.
Muhammad Awaid Ghadeer Al-Obaidi.
College of Agriculture - University of
.Anbar, 2018**

**Introduction to plant physiology. -2
Dr.. Mrs. Omar Al-Huwairis and Dr.
Tayeb Haj Ali Ahmed. Khartoum .
Khartoum University Publishing
.House, 2010**

**A strategy for managing and -3
irrigating field crops. NS. Dr.. Nemat
Abdel Aziz Nouredine and I. Dr..
Mohamed Fawzy Hamed and d. Hani
Saber Saudi. Academic Library. Cairo .
.Arab Republic of Egypt, 2013**

**Plant nutrition guide. Dr.. Youssef -4
Muhammad Abu Dahi and d.
Supporter Ahmed Younis. College of
Agriculture - University of Baghdad,
.1988**

**Reclamation and improvement of -5
desert lands. Dr.. Maher Georgy
Naseem. Faculty of Agriculture - Saba
Pasha - Alexandria University (first
. edition). 2006**

**Production and improvement of -6
field crops (part one). Abdul Hamid
Ahmed Al-Younes, University of
.Baghdad - College of Agriculture, 1993**

**Grain production. Mr. Dr. Abdel -7
Hamid Mohamed Hassanein, Faculty of
Agriculture - Al-Azhar University,
.Arab Republic of Egypt 2019**

Principles of field crop production. - 9

- :Required readings ▪
- ☑ Course Books ▪
- other ▪

<p>Dr.. Muhammad Hazal Kazem Al-Baldawi and d. Aladdin Abdul Majeed Al-Jubouri and d. Conciliator Abdul Razzaq Suhail Al-Naqib. College of Agriculture - University of Baghdad, .2014</p> <p>Lectures on crop management. so. -10 Medhat Majeed Al-Sahoki, College of Agriculture - University of Baghdad, 2012</p> <p>Lectures and statistics from the - 11 .cluster network</p>	
	Special requirements
	Social services (including guest lectures, professional training (and field studies

3- Acceptance
Prerequisites
Less number of students

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Hamid abdalkader ajaj
2. University Department/Centre	Field Crops Department
3. Programme Title	
4. Title of Final Award	Biochemistry
5. Modes of Attendance offered	Electronic
6. Accreditation	2020-2021
7. Other external influences	75
8. Date of production/revision of this specification	17 -2-2021

9. Aims of the Course

The course aims to introduce the student to the chemical structures and the vital importance of organic compounds in living cells such as all kinds of carbohydrates, all kinds of fats, amino acids and all kinds of proteins, nucleic acids (DNA and RNA), enzymes and their mechanism of action and factors affecting their effectiveness. As well as introducing the student to the most important qualitative and quantitative reagents for sugars, fats and proteins.



10. Learning Outcomes, Teaching, Learning and Assessment Methods

- Definition of biochemistry, a brief review of biochemistry vocabulary that will be given during the semester.
- Enable students to acquire knowledge, science, and knowledge of plant cells, cell components and their functions.
- Introducing students to carbohydrates, their importance and their divisions.
- Introducing students to fats - their definition - their importance - fatty acids - their divisions - their structures - their interactions.
- Introducing students to amino acids - their divisions - their structures - properties of amino acids - their interactions.
- Introducing students to proteins - their definition - their divisions - levels of protein synthesis - denaturation.
- Introducing students to nucleic acids - their importance - nucleotides - their functions - their structure - types of nucleic acids.
- Introducing students to enzymes - their definition - the mechanism of enzyme action - their classification - inactive and active enzymes - factors affecting the speed of an enzymatic reaction.

B. Subject-specific skills

Teaching and Learning Methods

- Providing students with the basics and lectures related to the subject.
- Using Power Point presentation methods for the purpose of communicating information well and clearly to students.
 - Use the blackboard to clarify and explain the lecture to the students.
 - Urging students to take advantage of Google search engines by asking them to submit scientific reports on the topics given to them within the course.

Assessment methods

- Daily and monthly tests through questions on the subject of the study
- Degrees about the student's participation in research and scientific reports

C. Thinking Skills

- Ask deductive questions to students
- Finding solutions to the problems and obstacles that students encounter in the practical part of the course and finding solutions to them

Enable students to perform the largest possible number of solving exercises and applications on the topics

Teaching and Learning Methods

- Assigning students to conduct research and reports
- Assigning students to collect resources on the topic using electronic research
- Develop teaching programs in coordination with higher departments
- Develop teaching curricula by the department similar to the work environment
- Due to the Corona pandemic, sending students to departments and directorates has been postponed for the purpose of conducting the summer application

Assessment methods

-
- Daily and monthly tests through questions on the subject of the study
 - Degrees about the student's participation in research and scientific reports
 - Student activities through the possibility of applying some experiments at home during the urban period around the subject matter

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5	Introduction to the science of biochemistry - the components and functions of a living cell.		Giving lectures (theoretical and practical) (e-learning and laboratory)	Conducting daily and monthly tests through questions about the subject of the study to determine their understanding of the subject
2	5	Carbohydrates - definition - importance - divisions - (monosaccharides, polysaccharides, polysaccharides)	.		
3	5	Monosaccharides - Analogs in monosaccharides - Derivatives of monosaccharides - cyclic structure of sugars			
4	5	Low Polysaccharides - Reducing and Non-Reducing Types			
5	5	Polysaccharides - their homogeneous and heterogeneous types			
6	5	first month exam			
7	5	Fats - definition - importance - fatty acids - divisions - structures - interactions - geometric similarities of fatty acids			
8	5	Categories of fats - simple fats - their types (oils, fats and waxes) - their structures - fat constants			
9	5	Compound and Derived Fats - Types - Structures			

10	5	Amino acids - their divisions - structures - properties of amino acids - their interactions	.		
11	5	Peptides - proteins - their definition - their divisions - levels of protein synthesis - denaturation			
12	5	second month exam			
13	5	Nucleic acids - their importance - nucleotides - their functions - their structure - types of nucleic acids			
14	5	Enzymes - their definition - the mechanism of enzyme action - their classification - inactive and active enzymes - factors affecting the rate of the enzymatic reaction			
15	5	Exam			

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	The Methodological Book . 1-Biochemistry - Part One (1) and (2). Written by Dr. Ali Hassan Al-Daoudi. External sources: 2- Basics of Biochemistry - written by Dr. Basil Kamel Al-Dalaly . 3- S.P.Singh.2007. A Textbook of Biochemistry , Fourth Edition , CBS Publishers Distributors& New-Delhi.Banglore. 4- Practical Biochemistry Written by: Dr. Ali Hassan Al-Dawadi .
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures, internship, field studies)	.

13. Admissions

Pre-requisites	
Minimum number of students	
Maximum number of students	

course description form

Reviewing the performance of higher education institutions ((review of the academic program))

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating the If he has made the most of the available learning opportunities. It must be linked to the description of the program.

1. Educational Institution	Anbar University
2. University Department / Center	field crops
3. Course name/code	Medicinal and aromatic plants
4. Programs in which it enters	All scientific fields
5. Forms of attendance available	electronic + in person
6. Semester/year	Spring 2019 - 2020
7. Number of hours of study (total)	75 hours (30 theoretical + 45 practical)
8. Date this description was prepared	2021
9. Course objectives:	
1- Providing students with knowledge of the nature of medicinal plants and how to use them	
2- Keeping abreast of modern global trends in the development of medicinal plant cultivation	
3- Providing students with information related to programs and files related to the methods of developing medicinal plants.	
4 - Dissemination of knowledge in the fields of food sciences and human nutrition and work on its application to serve the community.	



10. Learning outcomes and methods of teaching, learning and assessment
1 - Understand the nature of the work of modern agriculture vocabulary and keep pace with what is modern
2- Distinguish between the active compounds in medicinal plants and their impact on human health
3- Distinguishing between the methods of extracting medicinal plants in terms of the method of extraction and the use of their products in industries
A - Teaching and learning methods
<ul style="list-style-type: none"> 1- Adopting the method of giving lectures and linking each topic with examples from the reality of the work situation in agriculture. 2- Giving them some simple practical exercises that are discussed by the students and solved during the lecture 3- With the participation of all students in the section with the professor, the subject is not given a kind of interaction. Make reports on specific topics
b- Evaluation methods
<ul style="list-style-type: none"> 1- Through the participation of students in the lecture, based on their prior preparation of the subject. 2- Giving them a homework exercise and asking them to bring the solution in a separate paper in the next lecture. 3- Giving the students a case study and dividing the students into groups to write a report about that study. 4- Assessment through monthly exams
<p>C- thinking skills</p> <ul style="list-style-type: none"> - 1 Demonstrate students' ability to appreciate the real field of learning. - 2 Analyze and discuss problems. - 3 Giving students an opportunity to think about solving these problems. 4 - Demonstrate the students' ability to give some possibilities and other ways to solve these problems.
<p>D - General and transferable skills (other skills related to employability and personal development.)</p> <ul style="list-style-type: none"> - 1 Employing computer programs to clarify the study material. - 2 Use the information studied in the applications. - 3 Applying this information on the ground. - 4 Link the information obtained with each other.

1. Course Structure					
the week	hours	Required learning outcomes	Unit/course or topic name	education method	Evaluation method
the first	5(2 +3)	Students' knowledge of the importance of medicinal plants, their history and the development of their cultivation	Introduction to medicinal plants	electronic	Discussion, daily exams, monthly exams
The second	5(2 +3)	Statement of the importance of developing the cultivation of medicinal plants within the global trend of growing medicinal plants	Classifications of morphological, medicinal, chemical, botanical and seasonal medicinal plants	electronic	Discussion, daily exams, monthly exams
the third	5(2 +3)	Learn how to study these plants and their classifications	Study the most important scientific interests that are a start in the development of the study of medicinal plants	electronic	Discussion, daily exams, monthly exams
the fourth	5(2 +3)	Students' knowledge of the importance of agricultural processes in the production of medicinal plants	Agricultural operations and plant service operations aimed at increasing production	electronic	Discussion, daily exams, monthly exams
Fifth	5(2 +3)	Students' knowledge of the importance of environmental factors and their impact on plants	Environmental factors, including heat, water, light, etc	electronic	Discussion, daily exams, monthly exams
	5(2 +3)	Students' knowledge of the importance of the impact of environmental factors on plants	Environmental factors, including soil and its microorganisms	electronic	Discussion, daily exams, monthly exams
	first month exam				
	5(2 +3)	Students' knowledge of secondary metabolites	Alkaloids: their composition, composition, effects and chemical extraction methods	electronic	Discussion, daily exams, monthly exams
ninth	5(2 +3)	Students' knowledge of secondary metabolites	Glycosides: their structure, composition, effects and chemical extraction methods	electronic	Discussion, daily exams, monthly exams
The tenth	5(2 +3)	Students' knowledge of secondary metabolites	Volatile oils: their composition, composition, effects and chemical extraction methods	electronic	Discussion, daily exams, monthly exams
eleventh	5(2 +3)	Students' knowledge of secondary metabolites	Tannins: their composition, composition, effects, and methods of chemical extraction	electronic	Discussion, daily exams, monthly exams
twelveth	5(2 +3)	Students' knowledge of secondary metabolites	Phenols: their composition, composition, effects and chemical extraction methods	electronic	Discussion, daily exams, monthly exams
Thirteenth	5(2 +3)	Botanical description of some medicinal plants and their economic importance	Plants of the family Oral and Solanaceous family	electronic	Discussion, daily exams, monthly exams
fourteenth	5(2 +3)	Botanical description of some medicinal plants and	The labial family, the sappy family, the legume	electronic	Discussion, daily exams, monthly



	their economic importance	family, and the grassy family	exams
Fifteenth	second month exam		

2. Infrastructure	
Required readings: <ul style="list-style-type: none"> • Course Books • other. 	- 1 Herbs is a medicine for every disease, 2015, Dr. Faisal bin Muhammad Iraqi - 2 Medicinal and aromatic plants and their medicinal uses, Dr. Abd Omran
Special requirements	
Social services (including guest lectures, professional training and field studies)	There are practical lessons in the field to apply what students have learned in the theoretical lessons

1. Acceptance	
Prerequisites	
Less number of students	10
The largest number of students	50

Subject teacher / Assis. Prof. Dr. Osama Hussain Mahidi

course description form

Reviewing the performance of higher education institutions ((review of the academic program))

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve Demonstrating whether he has made maximum use of available learning opportunities. It must be linked to the description the program.

University of Anbar - College of Agriculture	1. Educational Institution
Field Crops	2. University Department/ Center
Plant Breeding Practical	3. Name/Code of Course
electronic	4. Programs that include
forms	5. Available electronic attendance
2019-2020 Spring	6. Semester / Year
45	7. Number of hours of study (total)
23/2/2021	8. The date this description was prepared

1-Course objectives

Giving students the foundations and methods of plant breeding, including the scientific bases that explain the systems of pollination, fertilization and reproduction in self-pollinating crops and cross-pollinated and vegetative propagated crops, as well as an explanation of the phenomenon of hybrid vigor and methods of production and development of varieties, hybrids and synthetic varieties.

Knowing how inheritance, inheritance and genetic collection take place, and how disease and insect resistance traits are transferred, improving specific traits, and cytoplasmic sterility. Modern breeding methods have strongly tended to use selection by molecular parameters, so this topic has been briefly addressed.

Learn how to produce the pure strain, the synthetic variety, and the compound.

Learn about clan inheritance and how to calculate genetic frequency

Identify sterility and incompatibility, their causes and how to overcome them in field crops

1. Learning outcomes and methods of teaching, learning and assessment

A-Knowledge and understanding:

- Definition of plant breeding, a brief review of plant breeding vocabulary that will be given during the semester.
- Enable students to acquire knowledge, science, and knowledge of plant cells, cell components and their functions. How is the process of insemination and fertilization?
- Introducing students to the process of hybridization and selection through practical lessons in the field.
- How to solve plant breeding issues and use them for the purpose of reaching results that show us what the work is.
- Learn about the sciences related to plant breeding and how to benefit from them from every aspect.
- Clarification of the operations that can be performed if we want to produce a single, double or triple strain, variety or hybrid.
- Clarify what infertility and incompatibility are and how to overcome them
- • Knowing how to produce varieties that are superior to local varieties and have high productivity

b- Subject-specific skills

- Training students in the field on hybridization and selection for self- and cross-pollinated field crops and how to conduct it
- Clarifying cases of infertility and incompatibility by conducting practical lessons in the field and laboratory
- Conducting special practical lessons in the field for students for the purpose of introducing and teaching the processes that take place in the field and laboratory

Teaching and learning methods

- Providing students with the basics and lectures related to the subject.
- Using Power Point presentation methods for the purpose of communicating information well and clearly to the student, in addition to practical lessons in the field.

- Urging students to take advantage of Google search engines by asking them to submit scientific reports on the topics given to them from the study material.

C- thinking skills

- Ask deductive questions to students.
- Finding solutions to the problems and obstacles that students encounter in the practical part of the course and finding solutions to them
- Enable students to perform as many exercises and applications as possible on the topics

Teaching and learning methods

- Assigning students to conduct research and practical reports.
- Assigning students to collect resources on the topic using electronic research.
- Develop training programs in coordination with higher departments.
- Develop teaching curricula by the department similar to the work environment.

Evaluation methods

- Daily and monthly tests through questions on the subject of the study.
- Degrees about the student's participation in research and scientific reports.
- Students' activities through the possibility of applying some experiments at home during the urban period around the subject.

D - General and transferable skills (other skills related to employability and personal development).

- Training the student on how to use information sources to maintain and develop his basic information.
- Develop the student's style of transferring information to the work environment.
- Training the student to conduct scientific research to solve problems at work and develop its methods.

11. Course Structure

- Training the student on how to use information sources to maintain and develop his basic information.
- Developing the student's style of transferring information to the work environment.
- Training the student to conduct scientific research to solve problems at work and develop its methods.

Week	Hours	Learning Outcomes Required	Unit/course name or subject	Method of instruction	Method of assessment
1	3	plant breeding	A field visit to learn about plants that are self-pollinated, cross-pollinated, vegetative and variance calculations for a specific trait in the plant.		Conducting daily and monthly tests through questions about the subject of the study to determine their understanding of the subject
2	3		Examine the floral system of self-pollinating crops (wheat and barley) and draw the floral system for them		
3	3		Examine the floral system of mixed-pollinated crops (maize) and draw the floral system for them		
4	3		Conducting a beating on some self-pollinating crops such as wheat and barley, conducting a castration process (separation of pollen grains) and wrapping flowers		
5	3		Conducting cross-pollination on some cross-pollinated crops		

			such as maize, wrapping male inflorescences and bagging female inflorescences		
6	3		Practical examples of hybrid vigor and indoor breeding in self-pollinated and cross-pollinated crops		
7	3		A field visit to learn about fodder and vegetative crops		
8	3		A field visit to identify crops affected by diseases and insects, and to diagnose resistant varieties		
9	3		Calculations of inheritance for all methods of inheritance and hereditary collection and the reasons for the different values of inheritance from one method to another		
10	3		Exam		
11	3		Genetic redundancy calculations for several samples from plant communities with low genetic frequency for a single pair of genes		
12	3		Recognizing male infertility - genetic - cytoplasmic		
13	3		Seeing the nature of pedigree records, collecting and storing germoplasm		

14	3		Exam		
15	3		Applications in the production of multipliers and mutagens		

2.1. Infrastructure

<p>Required readings:</p> <ul style="list-style-type: none"> • Course Books • other 	<ol style="list-style-type: none"> 1- Plant breeding and improvement 2- The basics of breeding and inheriting field crops 3- General genetics d. Abdul Hussein Al-Faisal 4- Practical genetics 5- The basics of genetics: Dr. Adnan Azari. 1999. University 6- Plant breeding and improvement. 1980. Medhat Majeed Al-Sahoki and others, University of Mosul. 7- Breeding and improving field crops. 1988. Hamid Gloub Ali. 8- Selection Methods in Plant Breeding. 2008. Izak Bos and Petre Caligare. Springer, Netherland.
Special requirements	
Social services (including guest lectures, professional training and field studies)	

3. Acceptance

Prerequisites	
Less number of students	10students
The largest number of students	50students



Ministry of Higher Education and Scientific Research
Scientific Supervision and Evaluation Agency
Quality Assurance and Accreditation Academic
Department
International Accreditation Department

Course description form

**Review the performance of higher education institutions
(academic program review)**

This course description provides a necessary summary of the most important characteristics of the course and the learning outputs expected of the student to achieve it. Demonstrating the most of the learning opportunities. It has to be linked to a description program.

1. Educational Institution	College of Agriculture - University of Anbar
2. University Department / Center	Scientific Department: Field Crops Department
3. Name/code decision	Agricultural machinery and equipment
4. Input programs	Educational/ engineering/mechanical
5. Available attendance forms	Seasonal- electronic and attendance
6. Course for study/Year	Autumn/ year 2
7. Number of studying hours (total)	60
8. The date of setting this description	2021 - 2022
9. Course objectives: To learn about design and application engineering foundations of agricultural tractors that enable students in the field crops department to deal with the use and methods of work of machinery. It is an earlier step in the process of teaching students to the subject of agricultural machinery for crops, which will be addressed with another lessons (mechanization of field crops) in the third year of study.	

10. Learning outcomes, teaching, learning and evaluation methods

A- Cognitive goals

1. Identifying the types of agricultural tractors and the ways in which they are classified.
2. Identify the types and sections of engines.
3. Identify the transformation of chemical energy into thermal energy.
4. Identify the basics of transmission and energy.
5. Identify the lubrication system with engines.
6. Identify the engine cooling methods.
7. Identify the ignite fuel inside the engine.
8. Identify the hydraulic system and the methods of connecting the equipment.

B- The skills objectives of the studying course:

1. Direct viewing of agricultural tractors and their parts.
2. How to drive a tractor and follow accident safety methods at work.
3. How to connect the tractor with the power take off shaft/ or rear arms associated with the hydraulic system.

Teaching and learning methods

Live lectures and presentation of scientific images and films for the basis of the work of engines and the devices attached to them, from the device of lubrication, cooling, fuel, hydraulic and methods of transfer of power. Discussions and intellectual questions between students during the lecture.

Evaluation methods

1. Theoretical exam number 2 30%
2. Practical exam number 2 15%
3. reports 5%

Thinking skills

1. Developing intellectual skill among students by answering questions with scientific discussions between them.
2. Scientific cooperation through joint reports between students.

General and transferred skills (other skills related to employability and personal development).

1. Identify the basic p reports principles of engine repair and maintenance and power transmission.
2. Identify how to search for information from specialists, approved books and the Internet.
3. Identify the engineering basics of machines and the development of their industry and ways of dealing with these devices and equipment.



Ministry of Higher Education and Scientific Research
Scientific Supervision and Evaluation Agency
Quality Assurance and Accreditation Academic
Department
International Accreditation Department

11. Study course` structure					
Week	Hours	Required learning outcomes	Unit name/course or subject	Teaching method	Evaluation method
1	5	Getting to know topics	Details of vocabulary, definition of tractors and work	theoretical and practical	audition
2	5	Types of agricultural tractors	Classification of tractors by manufacturing and design concepts	theoretical and practical	audition
3	5	Main tractor parts	Definition and explanation of the components of the agricultural tractor	theoretical and practical	audition
4	5	Engines and their types	Engine classification, definition and explanation of components	theoretical and practical	audition
5	5	Engine piston movement cycle	The way fuels ignite and their impact on the performance of each type	theoretical and practical	audition
6	5	Engine lubrication device	Multiple benefits of oil with system installation parts	theoretical and practical	audition
7	5	Engine cooling system	Types of cooling engines with their parts and work	theoretical and practical	audition
8	5	Fuel system	Details of the diesel and gasoline system	theoretical and practical	audition
9	5	Kinetic energy transmissions	Separator, gearbox and power take off shaft	theoretical and practical	audition
10	5	Hydraulic system	Components and work of the hydraulic system in the tractor	theoretical and practical	audition
11	5	Equipment with tractor	How to connect tractors with equipment	theoretical and practical	audition
12	5	Smart agri-system	Use of the expected system and ways to use it in agricultural tractors	theoretical and practical	audition

12. Infrastructure	
Required readings: <ul style="list-style-type: none"> ▪ The course was written ▪ other 	Basics of tractors and agricultural equipment. Written by Professor Lotfi Hussein Mohammed Ali
Special requirements	Scientific sites through the GogL engine to search for the foundations of agricultural machinery and tractors, the most important of which is the FAO website: Pdf Mechanics and Engineering Book (mechaniclub.com) Agricultural mechanization in development. Guidelines for strategy formulation (fao.org)
Social services (e.g. guest lectures, vocational training and field studies)	Scientific trips to the stations belonging to the college and to the research station in Ramadi that belongs to the Agricultural Research Department / Ministry of Agriculture

13. Acceptance	
Previous requirements	
Fewer students	9
Largest number of students	11



Course Description Form

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program specification.

1. Educational institution	University of Anbar - College of Agriculture
2. University Department/Centre	Field crops
3. Name / Course code	Plant Physiology
4. Program	
5. Modes of Attendance offered	Electronic
6. Accreditation	The first semester - the second stage
7. Number of Study Hours (Total)	75
8. Date of production/revision of this specification	6 -11-2020
9. Aims of the Course	
1- Introducing students to the types of plant cells, their components, and the function of each component. ?	
2- Identify the types of plant carrier vessels, their parts and functions. ?	
3- Learn about the biological processes that occur in the plant cell (transpiration, cellular respiration, photosynthesis). ?	
4-Learn about some physiological concepts and plant hormones	



10. Learning Outcomes, Teaching, Learning and Assessment Methods

- Definition of plant physiology, a brief review of the vocabulary of plant physiology that will be given during the semester
 - Enable students to acquire knowledge, science, and knowledge of plant cells, cell components and their functions. and plant tissues
 - Introducing students to the process of water absorption and theories of its rise, plant organs
 - The process of removing excess water through the process of transpiration, and theories of water loss by opening and closing stomata
- The process of breathing and how it occurs
 The process of photosynthesis and how it occurs
- The most important plant hormones
- The phenomenon of hibernation and its importance for plants

B. Subject-specific skills

Training students on the microscope: identifying its parts, how to deal with it, how to prepare glass slides

Making sections of the plant cell .. and identifying the cell wall, the nucleus, the protoplasm...
 Identifying the components of the cell in prepared slices, as well as making sections of the plant leaf and revealing the stomata

- Identify the plastids. And plant tissues for the purpose of introducing the student to its composition

Teaching and Learning Methods

Providing students with the basics and lectures related to the subject

- Using Power point presentation methods for the purpose of communicating the information well and clearly to the student
- Urging students to take advantage of Google search engines by asking them to submit scientific reports on the topics given to them from the study material.

Assessment methods

- Daily and monthly tests through questions on the subject of the study
- Degrees about the student's participation in research and scientific reports

C. Thinking Skills

- Ask deductive questions to students
- Finding solutions to the problems and obstacles that students encounter in the practical part of the course and finding solutions to them
- Enable students to perform the largest possible number of solving exercises and applications on the topics

Teaching and Learning Methods

- Assigning students to conduct research and reports
- Assigning students to collect resources on the topic using electronic research
- Develop teaching programs in coordination with higher departments
- Develop teaching curricula by the department similar to the work environment
- Due to the Corona pandemic, sending students to departments and directorates has been postponed for the purpose of conducting the summer application

Assessment methods



Ministry of Higher Education and Scientific Research
Scientific Supervision and Evaluation Authority
Department of Quality Assurance and Academic
Accreditation
International Accreditation Department

- Daily and monthly tests through questions on the subject of the study
- Degrees about the student's participation in research and scientific reports
- Student activities through the possibility of applying some experiments at home during the urban period around the subject matter

11. Course Structure

Week	Hours	Required learning outcomes	Unit/Module or Topic Title	Learning Method	Assessment Method
1	5	Definition of physiology and its importance	An introduction to plant physiology with a historical view	Microscope: Getting to know its parts, how to deal with it, how to prepare glass slides By watching a video	Conducting daily and monthly tests through questions about the subject of the study to determine their understanding of the subject
2	5	The plant cell, its structure and functions	The plant cell, its types, a study of the cell of higher plants, the cell wall, the middle lamina, the primary wall, the secondary wall, the pit, and the plasmonic bonds.	Recognizing the cell wall, the nucleus, the protoplasm... Recognizing the components of the cell within e-learning videos	General questions and discussion or an exam
3	5	Living organelles in the cytoplasm	Living contents of a plant cell: cytoplasm, mitochondria, ribosomes, Golgi apparatus, plastids, spheroids, microtubules, cell membranes.	Identify the plastids (green, colored, colorless). And the anthocyanin pigment in the cell juice, via video	General questions and discussion or an exam
4	5	Non-living bodies in a cell	The non-living contents of a plant cell. Vacuoles, cellular juice, crystals and their types, starchy granules, iron granules.	View samples of crystals (pink, stellate, suspended...)	monthly exam
5	5	Wood texture and phloem texture	Carrier vessels - wood, phloem, their parts and functions	Do an experiment at home to identify the carriers with materials available at home	general questions
6	5	Mechanisms of plant water absorption	The process of water absorption and theories of its rise	Do an experiment at home that shows how water rises through wood vessels to the plant organs	Discussion and exam
7	5	Transpiration and its types	The process of removing excess water through the transpiration process	Making a pot experiment, the students were able to watch the water leaving the plant through the process of transpiration.	general questions
8	5	Interpretation of water loss theories	Theories of water loss through stomata and the mechanics that determine the opening and	To identify the internal structure of the leaf, the upper epidermis, the mesophyll, the lower epidermis, the vessels (veins) of a	monthly exam

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			closing process	dicotyledonous plant (ready slice of leaf)	
9	5	How does a plant deal with salt?	Theories that study the processes of absorption of salts and their path within the different plant organs	Through e-learning platforms, to identify the structure of the leaf of a monocotyledonous plant, Identifying wood texture, vascular cell wall clots and its types, bronchioles, fibers, wood parenchyma (with pictures via e-learning)	general questions
10	5	types of salts	The importance of these salts and the effect of increasing or decreasing them.	To identify the occurrence of the plasmolysis process of the plant cell and what are the mechanisms that the plant has to withstand salt stress (with pictures)	Discussion and exam
11	5	respiration and energy production	The process of breathing and how, stages and places it occurs inside the plant	Learn about the internal structure of the mitochondria (with pictures and videos)	general questions
12	5	Learn about C3 and C4 plants	The process of photosynthesis with all its different stages, places of occurrence and its products. ?	Identify the chloroplasts and their components, and where the light and dark reactions occur (with pictures)	monthly exam
13	5	Short term transportation and long term transportation	Phloem transport and how to transfer the mature sap to the plant parts	Identification of phloem tissue, sieve tubes, companion cells, phloem fibers, phloem parenchyma (with pictures).	general questions
14	5	Regulating hormonal action	The most important plant hormones, their functions and mechanisms of action	Learn about the types of hormones and their uses And watching a video of some experiments on stimulating some seeds with solutions of some hormones and comparing them without treatment	general questions
15	5	What is hibernation and its types?	The phenomenon of vegetative hibernation and its importance	Conducting a germination experiment for some crop seeds with dishes inside the house and teaching the student	Discussion and exam



how to calculate the percentage of germination. And learn about the types of hibernation that affect seeds and how to break hibernation

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	1- plant physiology book 2- The basics of plant physiology 3- Topics in plant physiology
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures, internship, field studies)	Practical application in the field, laboratory and graduation research projects.

13. Admissions

Pre-requisites	
Minimum number of students	10
Maximum number of students	40

Assist. Prof. Imad Mahmood Ali

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Bushra Shaker Jassim
2. University Department/Centre	Faculty of Agriculture
3. Programme Title	Field crops
4. Title of Final Award	Plant Physiology
5. Modes of Attendance offered	Electronic
6. Accreditation	The first semester - the second stage
7. Other external influences	75
8. Date of production/revision of this specification	6 -11-2020
9. Aims of the Course	
1- Introducing students to the types of plant cells, their components, and the function of each component. ?	
2- Identify the types of plant carrier vessels, their parts and functions. ?	
3- Learn about the biological processes that occur in the plant cell (transpiration, cellular respiration, photosynthesis). ?	
4-Learn about some physiological concepts and plant hormones	

10. Learning Outcomes, Teaching, Learning and Assessment Methods

- Definition of plant physiology, a brief review of the vocabulary of plant physiology that will be given during the semester
 - Enable students to acquire knowledge, science, and knowledge of plant cells, cell components and their functions. and plant tissues
 - Introducing students to the process of water absorption and theories of its rise, plant organs
 - The process of removing excess water through the process of transpiration, and theories of water loss by opening and closing stomata
- The process of breathing and how it occurs
The process of photosynthesis and how it occurs
- The most important plant hormones
- The phenomenon of hibernation and its importance for plants

B. Subject-specific skills

Training students on the microscope: identifying its parts, how to deal with it, how to prepare glass slides

- Making sections of the plant cell .. and identifying the cell wall, the nucleus, the protoplasm... Identifying the components of the cell in prepared slices, as well as making sections of the plant leaf and revealing the stomata
- Identify the plastids. And plant tissues for the purpose of introducing the student to its composition

Teaching and Learning Methods

Providing students with the basics and lectures related to the subject

- Using Power point presentation methods for the purpose of communicating the information well and clearly to the student
- Urging students to take advantage of Google search engines by asking them to submit scientific reports on the topics given to them from the study material.

Assessment methods

- Daily and monthly tests through questions on the subject of the study
- Degrees about the student's participation in research and scientific reports

C. Thinking Skills

- Ask deductive questions to students
 - Finding solutions to the problems and obstacles that students encounter in the practical part of the course and finding solutions to them
- Enable students to perform the largest possible number of solving exercises and applications on the topics

Teaching and Learning Methods

- Assigning students to conduct research and reports
- Assigning students to collect resources on the topic using electronic research
- Develop teaching programs in coordination with higher departments
- Develop teaching curricula by the department similar to the work environment
- Due to the Corona pandemic, sending students to departments and directorates has been postponed for the purpose of conducting the summer application

Assessment methods

- Daily and monthly tests through questions on the subject of the study
- Degrees about the student's participation in research and scientific reports
- Student activities through the possibility of applying some experiments at home during the urban period around the subject matter

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5	Definition of physiology and its importance	An introduction to plant physiology with a historical view	Microscope: Getting to know its parts, how to deal with it, how to prepare glass slides By watching a video	Conducting daily and monthly tests through questions about the subject of the study to determine their understanding of the subject
2	5	The plant cell, its structure and functions	The plant cell, its types, a study of the cell of higher plants, the cell wall, the middle lamina, the primary wall, the secondary wall, the pit, and the plasmonic bonds.	Recognizing the cell wall, the nucleus, the protoplasm... Recognizing the components of the cell within e-learning videos	General questions and discussion or an exam
3	5	Living organelles in the cytoplasm	Living contents of a plant cell: cytoplasm, mitochondria, ribosomes, Golgi apparatus, plastids, spheroids, microtubules, cell membranes.	Identify the plastids (green, colored, colorless). And the anthocyanin pigment in the cell juice, via video	General questions and discussion or an exam
4	5	Non-living bodies in a cell	The non-living contents of a plant cell. Vacuoles, cellular juice, crystals and their types, starchy granules, iron granules.	View samples of crystals (pink, stellate, suspended...)	monthly exam
5	5	Wood texture and phloem texture	Carrier vessels - wood, phloem, their parts and functions	Do an experiment at home to identify the carriers with materials available at home	general questions
6	5	Mechanisms of plant water absorption	The process of water absorption and theories of its rise	Do an experiment at home that shows how water rises through wood vessels to the plant organs	Discussion and exam
7	5	Transpiration and its types	The process of removing excess water through the transpiration process	Making a pot experiment, the students were able to watch the water leaving the plant through the process of transpiration.	general questions
8	5	Interpretation of water loss theories	Theories of water loss through stomata and the mechanics that determine the opening and closing process	To identify the internal structure of the leaf, the upper epidermis, the mesophyll, the lower epidermis, the vessels (veins) of a dicotyledonous plant	monthly exam

				(ready slice of leaf)	
9	5	How does a plant deal with salt?	Theories that study the processes of absorption of salts and their path within the different plant organs	Through e-learning platforms, to identify the structure of the leaf of a monocotyledonous plant, Identifying wood texture, vascular cell wall cells and its types, bronchioles, fibers, wood parenchyma (with pictures via e-learning)	general questions
10	5	types of salts	The importance of these salts and the effect of increasing or decreasing them.	To identify the occurrence of the plasmolysis process of the plant cell and what are the mechanisms that the plant has to withstand salt stress (with pictures)	Discussion and exam
11	5	respiration and energy production	The process of breathing and how, stages and places it occurs inside the plant	Learn about the internal structure of the mitochondria (with pictures and videos)	general questions
12	5	Learn about C3 and C4 plants	The process of photosynthesis with all its different stages, places of occurrence and its products. ?	Identify the chloroplasts and their components, and where the light and dark reactions occur (with pictures)	monthly exam
13	5	Short term transportation and long term transportation	Phloem transport and how to transfer the mature sap to the plant parts	Identification of phloem tissue, sieve tubes, companion cells, phloem fibers, phloem parenchyma (with pictures).	general questions
14	5	Regulating hormonal action	The most important plant hormones, their functions and mechanisms of action	Learn about the types of hormones and their uses And watching a video of some experiments on stimulating some seeds with solutions of some hormones and comparing them without treatment	general questions
15	5	What is hibernation and its types?	The phenomenon of vegetative hibernation and its importance	Conducting a germination experiment for some crop seeds with dishes inside the house and teaching the student how to calculate the percentage of germination. And learn about the types of hibernation that affect seeds and how to break hibernation	Discussion and exam

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	1- plant physiology book 2- The basics of plant physiology 3- Topics in plant physiology
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures, internship, field studies)	Practical application in the field, laboratory and graduation research projects.

13. Admissions

Pre-requisites	
Minimum number of students	10
Maximum number of students	40



Course Description Form

Reviewing the performance of higher education (institutions (review of the academic program

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities. It must be linked to the description of the program.

Educational Institution	University of Anbar - College of Agriculture
University Department / Center	Dep. Of Field Cros
Course name/code	Biochemistry
The programs it enters	
Available forms of attendance	online and lab
Year / Course	First and second semester of first and second stage
hours Number of course (total)	75
Date	
<p>Course objectives:</p> <p>The general objective of the article:</p> <p>The course aims to introduce the student to the chemical structures and the vital importance of organic compounds in living cells such as all kinds of carbohydrates, all kinds of fats, amino acids and all kinds of</p>	

proteins, nucleic acids (DNA and RNA), enzymes and their mechanism of action and factors affecting their effectiveness. As well as introducing the student to the most important qualitative and quantitative reagents for sugars, fats and proteins.

own goal:

Biochemistry is a basic subject given to some scientific departments in different study stages. At the end of the semester, the student is able to gather sufficient information about the components of the living cell, the organic compounds that make up them, and their vital importance within the bodies of living organisms, whether it is a plant, animal, or human being. It is the basis for other courses.

Learning outcomes and methods of teaching, learning and assessment

- • Definition of biochemistry, a brief review of the vocabulary of biochemistry that will be given during the semester.
- • Enable students to acquire knowledge, science, and knowledge of plant cells, cell components and their functions.
- • Introducing students to carbohydrates, their importance and their divisions.
- • Introducing students to fats - their definition - their importance - fatty acids - their divisions - their structures - their interactions.
- • Introducing students to amino acids - their divisions - their structures - properties of amino acids - their interactions.
- Introducing students to proteins - their definition - their divisions - levels of protein synthesis - denaturation.
- • Introducing students to nucleic acids - their importance - nucleotides - their functions - their structure - types of nucleic acids.
- Introducing students to enzymes - their definition - the mechanism of enzyme action - their classification - inactive and active enzymes - factors affecting the speed of an enzymatic reaction.

Teaching and learning methods



- Providing students with the basics and lectures related to the subject.
- Using Power Point presentation methods for the purpose of conveying the information in a clear and good manner to the students.
- Use the blackboard to clarify and explain the lecture to the students.
- Urging students to take advantage of Google search engines by asking them to submit scientific reports on the topics that are given to them within the course.

Teaching and learning methods

- Assigning students to conduct research and reports.
- Assigning students to collect resources on the subject using electronic research.

Evaluation methods

- • Daily and monthly tests through questions on the subject of the study.
- • Degrees about students' participation in research and scientific reports.
- • Grades about students' attendance at the lecture and participation while asking questions.

General and transferable skills (other skills related to employability and personal development).

- Training students on how to use information sources to maintain and develop basic information.
- Training students to conduct scientific research to solve problems at work and develop its methods.
- Develop students' ability to dialogue and discussion.

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Course

- Training students on how to use information sources to maintain and develop their basic information.
- Developing the students' style of transferring information to the work environment.

Training students to conduct scientific research to solve problems at work and develop its methods.

Weeks	Hours	Required learning outcomes	subjects	education method	Evaluation method
1	5	Introduction to the science of biochemistry - the components and functions of a living cell.		Giving lectures (theoretical and practical) (e-learning and laboratory	Conducting daily and monthly tests through questions about the subject of the study to determine their understanding of the subject
2	5	Carbohydrates - definition - importance - divisions - (monosaccharides, polysaccharides, polysaccharides)			
3	5	Monosaccharides - Analogs in monosaccharides - Derivatives of monosaccharides - The cyclic structure of sugars.			
4	5	Low Polysaccharides - Reducing and Non-Reducing Types			
5	5	Polysaccharides - their homogeneous and heterogeneous			



		types			
6		first exam			
7	5	Fats - definition - importance - fatty acids - divisions - structures - interactions - geometric similarities of fatty acids			
8	5	Categories of fats - simple fats - their types (oils, fats and waxes) - their structures - fat constants			
9	5	Compound and Derived Fats - Types - Structures			
10	5	Amino acids - their divisions - their structures - properties of amino acids - their interactions			
11	5	Peptides - proteins - their definition - their divisions - levels of protein synthesis - denaturation			
12		second exam			
13	5	الاحماض النووية – اهميتها- النيوكليوتيدات –وظائفها - تركيبها- انواع الحوامض النووية			
14	5	Enzymes - their definition - the mechanism of enzyme action - their classification - inactive and active enzymes - factors affecting			

		the rate of the enzymatic reaction.			
15		third exam			



<ul style="list-style-type: none"> ▪ Required readings: ▪ ☐ Course Books ▪ other 	<p>Methodology books: The Methodological Book - Biochemistry - Part One (1) and (2). Written by Dr. Ali Hassan Al-Daoudi.</p> <p>External sources: Fundamentals of Biochemistry - written by Dr. Basil Kamel Al-Dalali S.P.Singh.2007. A Textbook of Biochemistry , Fourth Edition , CBS Publishers Distributors New-Delhi.Banglore.&</p> <p>principle of biochemistry. Written by: Dr. Ali Hassan Al-Dawadi.</p>
Special requirements	
Social services (including guest lectures, professional training and field studies)	

Prerequisites	
Less number of students	
The largest number of students	

Teaching staff of Field crops Dept.



Course Description Form

Reviewing the performance of higher education ((institutions ((review of the academic program

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made maximum use of the available learning opportunities. It must be linked to the description of the program.

Educational Institution	University of Anbar - College of Agriculture
University Department / Center	Dep. Of Field Cros
Course name/code	Biochemistry
The programs it enters	
Available forms of attendance	online and lab
Year / Course	First and second semester of first and second stage
hours Number of course (total)	75
Date	
<p>Course objectives:</p> <p>The general objective of the article:</p> <p>The course aims to introduce the student to the chemical structures and the vital importance of organic compounds in living cells such as all kinds of carbohydrates, all kinds of fats, amino acids and all kinds of</p>	

proteins, nucleic acids (DNA and RNA), enzymes and their mechanism of action and factors affecting their effectiveness. As well as introducing the student to the most important qualitative and quantitative reagents for sugars, fats and proteins.

own goal:

Biochemistry is a basic subject given to some scientific departments in different study stages. At the end of the semester, the student is able to gather sufficient information about the components of the living cell, the organic compounds that make up them, and their vital importance within the bodies of living organisms, whether it is a plant, animal, or human being. It is the basis for other courses.

Learning outcomes and methods of teaching, learning and assessment

- • Definition of biochemistry, a brief review of the vocabulary of biochemistry that will be given during the semester.
- • Enable students to acquire knowledge, science, and knowledge of plant cells, cell components and their functions.
- • Introducing students to carbohydrates, their importance and their divisions.
- • Introducing students to fats - their definition - their importance - fatty acids - their divisions - their structures - their interactions.
- • Introducing students to amino acids - their divisions - their structures - properties of amino acids - their interactions.
- Introducing students to proteins - their definition - their divisions - levels of protein synthesis - denaturation.
- • Introducing students to nucleic acids - their importance - nucleotides - their functions - their structure - types of nucleic acids.
- Introducing students to enzymes - their definition - the mechanism of enzyme action - their classification - inactive and active enzymes - factors affecting the speed of an enzymatic reaction.

Teaching and learning methods



- Providing students with the basics and lectures related to the subject.
- Using Power Point presentation methods for the purpose of conveying the information in a clear and good manner to the students.
- Use the blackboard to clarify and explain the lecture to the students.
- Urging students to take advantage of Google search engines by asking them to submit scientific reports on the topics that are given to them within the course.

Teaching and learning methods

- Assigning students to conduct research and reports.
- Assigning students to collect resources on the subject using electronic research.

Evaluation methods

- • Daily and monthly tests through questions on the subject of the study.
- • Degrees about students' participation in research and scientific reports.
- • Grades about students' attendance at the lecture and participation while asking questions.

General and transferable skills (other skills related to employability and personal development).

- Training students on how to use information sources to maintain and develop basic information.
- Training students to conduct scientific research to solve problems at work and develop its methods.
- Develop students' ability to dialogue and discussion.

1987

1408

Course

- Training students on how to use information sources to maintain and develop their basic information.
- Developing the students' style of transferring information to the work environment.

Training students to conduct scientific research to solve problems at work and develop its methods.

Weeks	Hours	Required learning outcomes	subjects	education method	Evaluation method
1	5	Introduction to the science of biochemistry - the components and functions of a living cell.		Giving lectures (theoretical and practical) (e-learning and laboratory	Conducting daily and monthly tests through questions about the subject of the study to determine their understanding of the subject
2	5	Carbohydrates - definition - importance - divisions - (monosaccharides, polysaccharides, polysaccharides)			
3	5	Monosaccharides - Analogs in monosaccharides - Derivatives of monosaccharides - The cyclic structure of sugars.			
4	5	Low Polysaccharides - Reducing and Non-Reducing Types			
5	5	Polysaccharides - their homogeneous and heterogeneous			



		types			
6		first exam			
7	5	Fats - definition - importance - fatty acids - divisions - structures - interactions - geometric similarities of fatty acids			
8	5	Categories of fats - simple fats - their types (oils, fats and waxes) - their structures - fat constants			
9	5	Compound and Derived Fats - Types - Structures			
10	5	Amino acids - their divisions - their structures - properties of amino acids - their interactions			
11	5	Peptides - proteins - their definition - their divisions - levels of protein synthesis - denaturation			
12		second exam			
13	5	الاحماض النووية – اهميتها- النيوكليوتيدات –وظائفها - تركيبها- انواع الحوامض النووية			
14	5	Enzymes - their definition - the mechanism of enzyme action - their classification - inactive and active enzymes - factors affecting			

		the rate of the enzymatic reaction.			
15		third exam			



<ul style="list-style-type: none"> ▪ Required readings: ▪ ☑ Course Books ▪ other 	<p>Methodology books: The Methodological Book - Biochemistry - Part One (1) and (2). Written by Dr. Ali Hassan Al-Daoudi.</p> <p>External sources: Fundamentals of Biochemistry - written by Dr. Basil Kamel Al-Dalali S.P.Singh.2007. A Textbook of Biochemistry , Fourth Edition , CBS Publishers Distributors New-Delhi.Banglore.&</p> <p>principle of biochemistry. Written by: Dr. Ali Hassan Al-Dawadi.</p>
Special requirements	
Social services (including guest lectures, professional training and field studies)	

Prerequisites	
Less number of students	
The largest number of students	

Teaching staff of Field crops Dept.



Course description form

Reviewing the performance of higher education institutions (review of the academic program)

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve Demonstrating whether he has made maximum use of available learning opportunities. It must be linked to the description the program.

1. Educational Institution	Agriculture College/ University of Anbar
2. University Department / Center	Field crops department
3. Course name/code	Statistics
4. Programs included in it	Field crops
5. Forms of attendance available	1. Electronic classes 2. classrooms
6. Season/Year	Fall and Spring Semester /2020-2021
7. Total school hours	30
8. The date this description was prepared	21/09/2021
9. Course objectives	
a. Introducing students to the importance and functions of statistics.	
b. Training students to apply statistics in their field of specialization.	
c. Enable the student to follow the scientific method in collecting, classifying, summarizing, and displaying data in a clear way, and finding statistical measures for the data.	
d. Enable the student to formulate hypotheses, test them and make comparisons.	
e. Enable the student to make plans and follow the correct steps in order to reach appropriate conclusions and decisions	

10. Learning outcomes and methods of teaching, learning and assessment
A. Cognitive goals
<ol style="list-style-type: none"> 1. Providing students with theoretical and practical scientific knowledge on the subject of statistics 2. The ability to collect and classify data 3. The ability to measure the degree of relationship between variables.
B - The skill objectives of the course
<ol style="list-style-type: none"> 1. Providing students with the required skills in field management and its impact on the sustainability of preserving the environment. 2- Increasing students' awareness in identifying recent trends in the statistics
C. Teaching and learning methods
<ol style="list-style-type: none"> 1. The method of giving lectures 2. Explanation, interpretation, and linking method . 3. Explanation method using electronic illustrations
D. Evaluation methods
<ol style="list-style-type: none"> 1. Daily, weekly and monthly exams. 2. Reports
E. Thinking skills
<ol style="list-style-type: none"> 1. Develop and enhance the thinking skill according to the student's ability and move him to a higher level of thinking . 2. Attention: Arousing the attention of students by conducting dialogue and participating in the discussion of opinions and ideas . 3. Response: following up on the student's response and interaction with the material that is being explained theoretically and practically 4. Develop and strengthen the critical thinking strategy in learning
F. Teaching and learning methods
<ol style="list-style-type: none"> 1. Active participation in the classroom is evidence of student commitment and responsibility 2. The semester and final exams are about the commitment and achievement of knowledge and skills of the student
G. Evaluation methods
Daily and quarterly exams
H. General and transferable skills related to employability and personal development.
<ol style="list-style-type: none"> 1. Develop students' ability to deal with technology 2. Teamwork Training 3. Develop the student's ability to dialogue and discussion

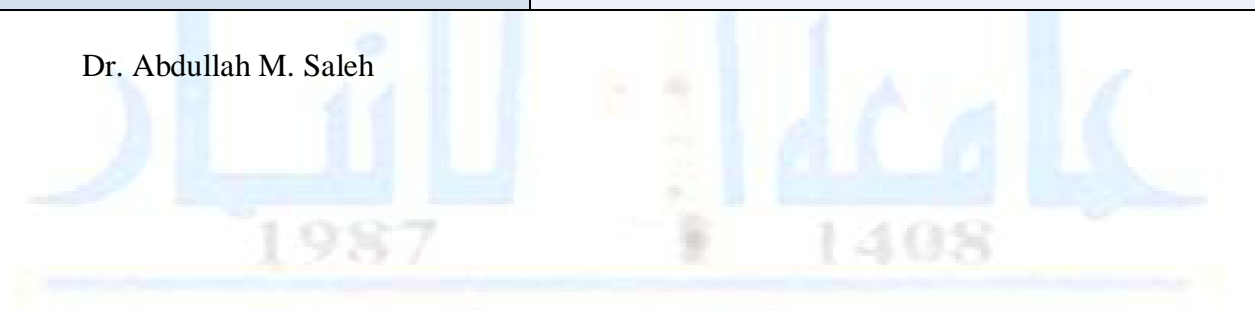
11. Course structure					
Week	Hours	Required learning outcomes	Unit or topic name	Education method	Evaluation method
1	2	Introduction to Statistics	Definition of statistics, uses of statistics, its division, the nature and division of data, variables and their division	Lectures	Exams
2	2	Statistical symbols	Read statistical symbols and understand functions written in statistical symbols	Lectures	Exams
3	2	Data collection and tabular presentation	Data collection, Frequency distributions, Frequency distribution table, Creating a frequency table, Class length, Class center, True limits, Relative	theoretical and practical lectures	Exams
4	2	Graphic representation	Graph of Frequency Distributions with Histogram, Polygon, and Frequency Curve	theoretical and practical lectures	Exams
5	2	Measures of Central Tendency	Arithmetic mean, median, and mode	theoretical and practical lectures	Exams
6	2	Measures of Dispersion or Variation	Range, mean deviation, variance, standard deviation, and coefficient of variation	theoretical and practical lectures	Exams
7	2	Correlation coefficient	Simple correlation, the relationship between two independent variables, the correlation significance test	theoretical and practical lectures	Exams
8	2	Regression coefficient	Simple linear regression, finding the relationship between two variables, one independent and the other dependent, predicting the value of the dependent variable in terms of	theoretical and practical lectures	Exams
9	2	Principles of probability theory	Permutations and combinations	theoretical and practical lectures	Exams
10	2	Discrete Probability Distributions	binomial distribution	theoretical and practical lectures	Exams
11	2	Continuous Probability Distributions	Normal distribution, standard normal distribution curve	theoretical and practical lectures	Exams
12	2	Continuous Probability Distributions	Areas under the normal distribution curve, applications	theoretical and practical lectures	Exams

13	2	Chi-square test	Independence, consent	theoretical and practical lectures	Exams
14	2	Hypothesis testing	Hypothesis formulation and testing, null hypothesis and alternative hypothesis, probability level, T-test, Z-test	theoretical and practical lectures	Exams
15	2	Analysis Variance	Variance analysis table	theoretical and practical lectures	Exams

12. Infrastructure	
<ul style="list-style-type: none"> ▪ Required readings: ▪ Course books ▪ Other 	<ol style="list-style-type: none"> 1. The book (Introduction to Statistics), written by Dr. Khasha Mahmoud Al-Rawi, College of Agriculture and Forestry / University of Mosul, 1989. 2. Medical, Ahmed Abdel Samie. 2007. Principles of Statistics, Amman. The starting house. RA: (6/17/2007) www.daralbedayah.com. 3. David, M. Lane. Introduction to Statistics. Online Edition.
Special requirements	
Social services, including for example guest lectures, professional training and field studies	

13. Acceptance	
Prerequisites	
Less number of students	
The largest number of students	

Dr. Abdullah M. Saleh





Course description form

Reviewing the performance of higher education institutions (review of the academic program)

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve Demonstrating whether he has made maximum use of available learning opportunities. It must be linked to the description the program.

1. Educational Institution	Agriculture College/ University of Anbar
2. University Department / Center	Field crops department
3. Course name/code	Statistics
4. Programs included in it	Field crops
5. Forms of attendance available	1. Electronic classes 2. classrooms
6. Season/Year	Fall and Spring Semester /2020-2021
7. Total school hours	30
8. The date this description was prepared	21/09/2021
9. Course objectives	
a. Introducing students to the importance and functions of statistics.	
b. Training students to apply statistics in their field of specialization.	
c. Enable the student to follow the scientific method in collecting, classifying, summarizing, and displaying data in a clear way, and finding statistical measures for the data.	
d. Enable the student to formulate hypotheses, test them and make comparisons.	
e. Enable the student to make plans and follow the correct steps in order to reach appropriate conclusions and decisions	

10. Learning outcomes and methods of teaching, learning and assessment
A. Cognitive goals
<ol style="list-style-type: none"> 1. Providing students with theoretical and practical scientific knowledge on the subject of statistics 2. The ability to collect and classify data 3. The ability to measure the degree of relationship between variables.
B - The skill objectives of the course
<ol style="list-style-type: none"> 1. Providing students with the required skills in field management and its impact on the sustainability of preserving the environment. 2- Increasing students' awareness in identifying recent trends in the statistics
C. Teaching and learning methods
<ol style="list-style-type: none"> 1. The method of giving lectures 2. Explanation, interpretation, and linking method . 3. Explanation method using electronic illustrations
D. Evaluation methods
<ol style="list-style-type: none"> 1. Daily, weekly and monthly exams. 2. Reports
E. Thinking skills
<ol style="list-style-type: none"> 1. Develop and enhance the thinking skill according to the student's ability and move him to a higher level of thinking . 2. Attention: Arousing the attention of students by conducting dialogue and participating in the discussion of opinions and ideas . 3. Response: following up on the student's response and interaction with the material that is being explained theoretically and practically 4. Develop and strengthen the critical thinking strategy in learning
F. Teaching and learning methods
<ol style="list-style-type: none"> 1. Active participation in the classroom is evidence of student commitment and responsibility 2. The semester and final exams are about the commitment and achievement of knowledge and skills of the student
G. Evaluation methods
Daily and quarterly exams
H. General and transferable skills related to employability and personal development.
<ol style="list-style-type: none"> 1. Develop students' ability to deal with technology 2. Teamwork Training 3. Develop the student's ability to dialogue and discussion

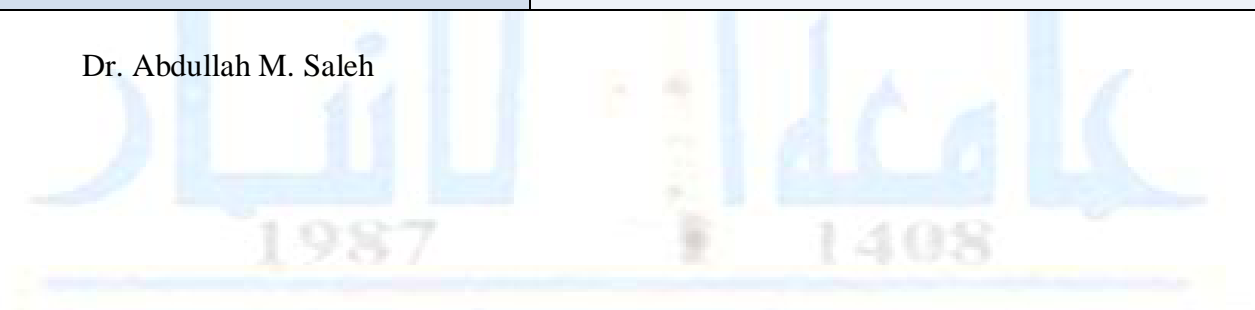
11. Course structure					
Week	Hours	Required learning outcomes	Unit or topic name	Education method	Evaluation method
1	2	Introduction to Statistics	Definition of statistics, uses of statistics, its division, the nature and division of data, variables and their division	Lectures	Exams
2	2	Statistical symbols	Read statistical symbols and understand functions written in statistical symbols	Lectures	Exams
3	2	Data collection and tabular presentation	Data collection, Frequency distributions, Frequency distribution table, Creating a frequency table, Class length, Class center, True limits, Relative	theoretical and practical lectures	Exams
4	2	Graphic representation	Graph of Frequency Distributions with Histogram, Polygon, and Frequency Curve	theoretical and practical lectures	Exams
5	2	Measures of Central Tendency	Arithmetic mean, median, and mode	theoretical and practical lectures	Exams
6	2	Measures of Dispersion or Variation	Range, mean deviation, variance, standard deviation, and coefficient of variation	theoretical and practical lectures	Exams
7	2	Correlation coefficient	Simple correlation, the relationship between two independent variables, the correlation significance test	theoretical and practical lectures	Exams
8	2	Regression coefficient	Simple linear regression, finding the relationship between two variables, one independent and the other dependent, predicting the value of the dependent variable in terms of	theoretical and practical lectures	Exams
9	2	Principles of probability theory	Permutations and combinations	theoretical and practical lectures	Exams
10	2	Discrete Probability Distributions	binomial distribution	theoretical and practical lectures	Exams
11	2	Continuous Probability Distributions	Normal distribution, standard normal distribution curve	theoretical and practical lectures	Exams
12	2	Continuous Probability Distributions	Areas under the normal distribution curve, applications	theoretical and practical lectures	Exams

13	2	Chi-square test	Independence, consent	theoretical and practical lectures	Exams
14	2	Hypothesis testing	Hypothesis formulation and testing, null hypothesis and alternative hypothesis, probability level, T-test, Z-test	theoretical and practical lectures	Exams
15	2	Analysis Variance	Variance analysis table	theoretical and practical lectures	Exams

12. Infrastructure	
<ul style="list-style-type: none"> ▪ Required readings: ▪ Course books ▪ Other 	<ol style="list-style-type: none"> 1. The book (Introduction to Statistics), written by Dr. Khasha Mahmoud Al-Rawi, College of Agriculture and Forestry / University of Mosul, 1989. 2. Medical, Ahmed Abdel Samie. 2007. Principles of Statistics, Amman. The starting house. RA: (6/17/2007) www.daralbedayah.com. 3. David, M. Lane. Introduction to Statistics. Online Edition.
Special requirements	
Social services, including for example guest lectures, professional training and field studies	

13. Acceptance	
Prerequisites	
Less number of students	
The largest number of students	

Dr. Abdullah M. Saleh





وزارة التعليم العالي والبحث العلمي
جهاز الإشراف والتقويم العلمي
دائرة ضمان الجودة والاعتماد الأكاديمي
قسم الاعتماد الدولي

Course Description Form

Reviewing the performance of higher education institutions ((review of the academic program))

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve Demonstrating whether he has made maximum use of available learning opportunities. It must be linked to the description the program.

1. Educational Institution	University of Anbar - College of Agriculture .1
2. University Department / Center	Field Crops Department .2
3. Course name/code	Cereal crops .3
4. Programs in which it enters	.4
5. Forms of attendance available	Electron with presence .5
6. Semester/year	First 2021-2022 .6
7. Number of hours of study (total)	75
8. Date this description was prepared	25 / 9 / 2021

Course objectives:

1- Study of the most important cereal crops in the world.

- 2- It includes knowing the spread of each crop in different regions of the world.
- 3- Knowing the economic importance of grain crops.
- 4- Identify the methods of growing each crop and the factors affecting the productivity of each crop.

Learning outcomes and methods of teaching, learning and .7 assessment
<p>A- Cognitive goals</p> <p>That the student learn about the most important grains in Iraq and the -1 .world</p> <p>The student should classify cereal crops according to their environmental -2 .needs</p> <p>The student should separate between grain crops and their importance in -3 .human and animal food</p> <p>To know the scientific methods used to increase the productivity of grain -4 .crops</p> <p>The student should evaluate the importance of each cereal crop and which -5 .one is best for investment in Iraq</p> <p>b- The skills objectives of the program</p> <p>.Introduce the student to the economic importance of cereal crops -1</p> <p>The student's ability to evaluate the most important grain crops in Iraq -2 .and the world</p> <p>Teaching the student the appropriate environmental conditions for -3 .each crop</p>
Teaching and learning methods
<p>.Explanation and clarification -1</p> <p>.The method of the lecture -2</p> <p>.Student groups -3</p> <p>.Practical lessons in agricultural fields -4</p> <p>Scientific trips to learn about the most important grain crops grown -5 .in Iraq</p> <p>.The method of self-learning -6</p>
Evaluation methods
<p>.Theoretical tests -1</p> <p>.Practical tests -2</p> <p>.Reports and studies -3</p>



<p>C- thinking skills</p> <p>The skill of thinking according to the student's ability and that the -1 goal of this skill is for the student to believe in what he is Concrete and understanding when, what and how to think and improve .the ability to think reasonably</p> <p>.Observation and perception -2</p> <p>.Analysis and interpretation -3</p> <p>.Preparation and calendar -4</p> <p>.Critical thinking strategy in learning -5</p>
<p>:Teaching and learning methods</p>
<p>.Brainstorming -1</p> <p>Thinking strategy according to the student's ability, for example (if the -2 student can learn the concept of management .Correct for a field planted with an important grain crop</p> <p>The strategy of critical thinking in learning, a term that symbolizes the -3 highest Levels of thinking, which aims to pose a problem and then analyze it .logically to reach the desired solution</p>
<p>Evaluation methods</p>
<p>.Theoretical tests -1</p> <p>.Practical tests -2</p> <p>.Reports and studies -3</p>
<p>D - General and transferable skills (other skills related to .(employability and personal development</p> <p>Verbal communication (the ability to express ideas clearly and -1 .(confidently in speech</p> <p>Teamwork (working with confidence within a team work group -2</p> <p>Investigation analysis (collecting information in a systematic and -3 scientific way to establish facts and principles as a solution to a .particular problem</p> <p>Written communication (the ability to express yourself clearly in -4 .writing</p>



Course structure .8

Evaluation method	education method	Unit name / course or topic	Required learning outcomes	Hours	week
Conducting daily and monthly tests through questions about the subject of the study to determine their understanding of the subject	botanical division of cereal crops,	Economic importance - production centers	Cereal crops	5	1
Conducting daily and monthly tests through questions about the subject of the study to determine their understanding of the subject	Botanical description - germination.	Wheat - economic importance - production centers - the original home.	Cereal crops	5	2
Conducting daily and monthly tests through questions about the subject of the	Climatic conditions - botanical description.	Stages of growth of wheat - division of wheat - nutritional value - distribution in Iraq - varieties.	Cereal crops	5	3

study to determine their understanding of the subject					
	. Climatic conditions - botanical description	Irrigation - lying - ripening - harvesting - threshing - productivity - storage - raising and improving wheat - stages of flour production.	Cereal crops	5	4
	Agricultural cycle - service operations and land preparation - fertilization - irrigation.	Barley division - distribution in Iraq - varieties.	Cereal crops	5	5
	Barley pests - diseases - insects - bush.	Maturity - harvest - threshing - storage - productivity - cultivation methods.	Cereal crops	5	6
	Climatic conditions - botanical description.	Rice - economic importance - production centers - the original home.	Cereal crops	5	7
	The location of rice in the cultivation cycle - soil - planting date - planting methods - quantity of seeds.	Growth stages of rice - totals of rice in the world - rice division - nutritional value - distribution in Iraq - varieties.	Cereal crops	5	8
	Fertilization - Irrigation - Pests - Diseases - Insects - Bush.	Ripeness - harvesting - threshing - drying - productivity - flocculation and its stages - rice flour - culinary quality characteristics.	Cereal crops	5	9
	Botanical description - varieties - soil and crop service	corn - economic importance - chemical composition of the	Cereal crops	5	10



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	operations.	yellow corn kernel -			
	Climatic conditions - botanical description - varieties - soil and crop service operations - pests and their resistance	Corn Fur Geographical Distribution - .History - Origin The right conditions to increase the yield of maize.	Cereal crops	5	11
	Climatic conditions - agricultural cycle - botanical description - varieties - soil and crop service operations - pests and their resistance	White corn - economic importance - origin - types of corn - distribution in Iraq - maturity - harvest and threshing.	Cereal crops	5	12
	Climatic conditions - agricultural cycle - botanical description - varieties - soil and crop service operations - pests and their resistance	Millet - economic importance - production centers - origin - types of millet - maturity - harvest - productivity - quality	Cereal crops	5	13
	Climatic conditions - agricultural cycle - botanical description - varieties - soil and crop service operations - pests and their resistance	Oats - economic importance - production centers - origin - types of oats - maturity - harvest - productivity - quality.	Cereal crops	5	14
	Climatic conditions - botanical description.	Maturity - harvest - method of breeding and improvement.	Cereal crops	5	15

1987

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Wheat cultivation and production techniques / Jamal Al-Shibiny. The first edition. The Egyptian Library .2009 -

The Scientific Book on Cereal Manufacturing / Abbas Hassan Hussein. first edition. University of Baghdad 2009 -

Field crop production, Dr. Salah El-Din Abdel-Razzaq Shafshak and d. Abdel Hamid Al-Sayed Al-Dababi, .2008, Dar Al-Fikr Al-Arabi, Egypt -

Production of field crops / Dr. Abdul Majeed Al-Ansari, University of Baghdad 1981 - -

Crops of Cereals and Pulses (Practical Part), Dr. Kamel Muhammad Al-Khafaji, University of Baghdad 2009 - -

Scientific bases for management, production and improvement of field crops. Mr. Dr. Iyad Hussein Al-Muaini and Prof. Muhammad Awaid Ghadeer Al-Obaidi. College of Agriculture - University of Anbar, .2018 - -

Producing and improving field crops (Part One). Abdul Hamid Ahmed Al-Younes, University of Baghdad - College of Agriculture, .1993 - -

Grain production. Mr. Dr. Abdel Hamid Mohamed Hassanein, Faculty of Agriculture - Al-Azhar University, Arab Republic of Egypt .2019 -

Principles of field crop production. Dr.. Muhammad Hazal Kazem Al- -

- :Required readings
- ☐ Course Books
- other



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<p>Baldawi and d. Aladdin Abdul Majeed Al-Jubouri and d. Conciliator Abdul Razzaq Suhail Al-Naqib. College of Agriculture - .University of Baghdad, 2014</p> <p>Lectures and statistics from the - .cluster network</p>	
	Special requirements
	Social services (including guest lectures, professional training (and field studies

	admissions .10
	Prerequisites
	Less number of students
	The largest number of students



Ministry of Higher Education and Scientific Research
Scientific Supervision and Evaluation Agency
Quality Assurance and Accreditation Academic
Department
International Accreditation Department

Course description form

**Review the performance of higher education institutions
(academic program review)**

This course description provides a necessary summary of the most important characteristics of the course and the learning outputs expected of the student to achieve it.

Demonstrating the most of the learning opportunities. It has to be linked to a description program.

1. Educational Institution	College of Agriculture - University of Anbar
2. University Department / Center	Scientific Department: Field Crops Department
3. Name/course code	Field crops machinery
4. Input programs	Educational/ engineering/mechanical
5. Available attendance forms	Seasonal- electronic and attendance
6. Course for study/Year	Autumn/ year 3
7. Number of studying hours (total)	75
8. The date of setting this description	2021 - 2022
9. Course objectives:	Getting to know the soil preparation equipment for sowing and the subsequent seeding and harvesting equipment, which enables students of the Field Crops Department to deal with the use and methods of agricultural machinery. It is a subsequent step when students were taught in the second stage to the subject of the basics of agricultural tractors and methods of converting kinetic energy to operate equipment for mechanizing field crops.

10. Learning outcomes, teaching, learning and evaluation methods

A- Cognitive goals

1. Getting to know the types of plows and softeners that deal with the soil in order to prepare the seed bed.
2. Identify the types of mechanical seeders.
3. Learn about the harvesters of wheat and corn.
4. Getting to know the purifiers of seeds.
5. Getting to know the feed equipment.
6. How to maintain and store equipment

B- The skills objectives of the studying course:

1. Examine the previously manufactured agricultural machinery equipment.
2. Seeing ways to develop machinery and equipment to facilitate the agricultural production process.
3. Motivating students to learn about the types of machines within the field production service and to develop ideas.

Teaching and learning methods

1. Direct lectures via the electronic class with the provision of a summary document of methodological books, presentation of pictures and scientific films on the basis of the work of field crop mechanization equipment and the devices attached to it.
2. Preparing scientific reports to discuss the basics and scientific applications.
3. Intellectual discussions and questions among students during the lecture.

Evaluation methods

1. Theoretical exam number 2 30%
2. Practical exam number 2 15%
3. reports 5%

4. Thinking skills
5. Developing intellectual skill among students by answering questions with scientific discussions between them.
6. Scientific cooperation through joint reports between students.

7. General and transferred skills (other skills related to employability and personal development).
8. Identify the basic equipment for soil treatment and maintenance.
9. Learn how to search for information from specialists, approved books, and the Internet.



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10. Identify the fundamentals of engineering equipment and the development of industry, and ways of dealing with these devices.

11. Study course` structure						
Week	Hours	Required learning outcomes	Unit name/course or subject	Teaching method	Evaluation method	
1	5	Getting to know topics	Vocabulary details and definition of equipment and field machines	theoretical and practical	audition	
2	5	Types of soil preparation equipment	Classification of primary and secondary soil equipment	theoretical and practical	audition	
3	5	Plough	Types, composition and operation	theoretical and practical	audition	
4	5	Disc plows and disc harrows	Types, composition and operation	theoretical and practical	audition	
5	5	digger plow	Types, composition and operation	theoretical and practical	audition	
6	5	seeding equipment	The multiple benefits of mechanical seeding with seeders installation parts	theoretical and practical	audition	
7	5	Ultra-fine grain seeder	Wheat, barley and sesame seeds	theoretical and practical	audition	
8	5	coarse grain seeder	Corn and soybean seeds	theoretical and practical	audition	
9	5	mechanical harvesting	Harvesting machines and their comparison with manual harvesting	theoretical and practical	audition	
10	5	wheat harvester	Its components and the work of the primary parts	theoretical and practical	audition	
11	5	wheat harvester	Attached parts work	theoretical and practical	audition	
12	5	corn harvester	Its components and field work	theoretical and practical	audition	
13	5	mechanical seed purifier	Its parts, types and functions			

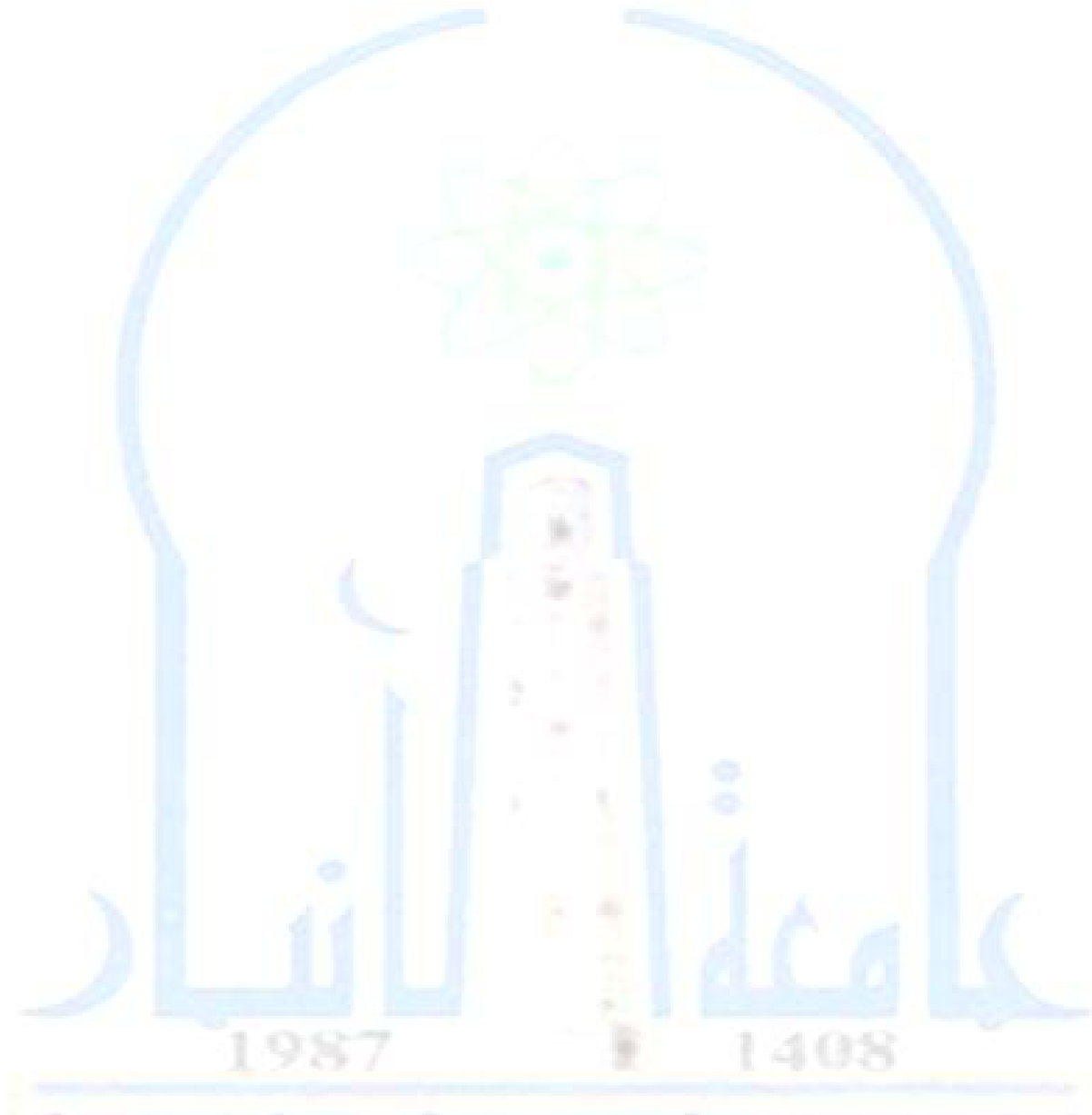
14	5	feed equipment	Types and how they work			
15	5	Crop mechanization equipment storage	Correct maintenance and storage methods			

12. Infrastructure	
<p>Required readings:</p> <ul style="list-style-type: none"> ▪ The course was written ▪ other 	<p>Basics of tractors and agricultural equipment. Written by Professor Lotfi Hussein Mohammed Ali</p>
<p>Special requirements</p>	<p>Scientific sites through the Google engine to search for the basics of agricultural machines for sowing and harvesting.</p>
<p>Social services (e.g. guest lectures, vocational training and field studies)</p>	<p>Scientific trips to the stations belonging to the college and to the research station in Ramadi that belongs to the Agricultural Research Department / Ministry of Agriculture</p>

13. Acceptance	
<p>Previous requirements</p>	<ol style="list-style-type: none"> 1. Daily preparation and preparation for the direct exam, with the preparation of reports and direct browsing of the Internet on the sites of crop equipment. 2. Direct link with the electronic lesson, within the pre-set dates in the schedule for each of the theoretical and practical lectures.
<p>Fewer students</p>	<p>9</p>
<p>Largest number of students</p>	<p>11</p>



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TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Bushra Shaker Jassim
2. University Department/Centre	Faculty of Agriculture
3. Programme Title	Field crops
4. Title of Final Award	Plant growth regulators
5. Modes of Attendance offered	Electronic
6. Accreditation	The second semester - the fourth stage
7. Other external influences	75
8. Date of production/revision of this specification	6 -6-2021
9. Aims of the Course	
Teaching students the basics of science related to growth	
Teaching students about the types of plant growth regulators	
Teach students how to treat plants with plant growth regulators	
Teaching students the physiological effects of plant growth regulators	
Teaching students the applications of using plant growth regulators in the field of field crops	
Teach students the role of plant growth regulators in increasing crop production	

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

- A1- Enable students to acquire knowledge of the basics of science related to development.
- A2- Enable students to know the methods of controlling growth through treatment with plant growth regulators
- A3 - Know the means and types of plant growth regulators.
- A4- Enabling students to obtain knowledge and understanding of the plant's hormonal needs.
- A5 - Enable students to obtain knowledge and understanding of ways to improve hormonal growth.

B. Subject-specific skills

- B1 - Training students to obtain the scientific skills necessary to work in breeding facilities
- B2 - Training students to acquire practical skills in the use of modern laboratory equipment
- B 3 - Students acquire the necessary laboratory skills to prepare plant growth regulators for plant treatment.
- B4 - Training students to acquire the skills required for work on ways to add plant growth regulators

Teaching and Learning Methods

- Giving lectures
- Using the method of dialogue and discussion with students to deliver theoretical information to the student
- Applying theoretical lessons in the laboratory.
- Use of modern laboratories
- Use of projectors during lectures.
- Assigning students homework to prepare scientific reports on the specialization

Assessment methods

- Quick daily exams.
- Monthly exams (two or more).
- Evaluation of the students' classroom activity
- Assessments on writing research, scientific reports and homework

C. Thinking Skills

- C 1- Cultivating human values to feel responsible for the great biological diversity that God Almighty has created, and to highlight the greatness of the Creator for this creation.
- C 2- Cultivating the values of love of work in the field of scientific research, especially since multiplication has become a means of exchanging cultures
- C3 - That the student knows that modern technologies are a means of scientific communication between different researchers because they are modern

Teaching and Learning Methods

- Through lectures
- Discussion with students (conversations).
- Showing scientific films that show the greatness of the Creator in His creation
- Hosting specialized professors to recharge the students' souls with values

Assessment methods

- Monthly written exams
- Direct oral exams
- Classroom and home activities

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5	Knowledge of terminology related to plant growth regulators and their applications	Terms related to plant growth regulators and their applications	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports
2	5	Learn about auxin	Plant growth regulators: Auxins	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports
3	5	Get to know gibberellins	gibberellins	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports
4	5	Understand the cellular basis of seed propagation	gibberellins	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports
5	5	Get to know gibberellins	Get to know gibberellins	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports
6	5	Get to know the two	Monday	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports
7	5	Learn about abscisic acid	abscisic acid	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports
8	5	Identify other compounds that act as plant growth regulators	Other compounds that act as plant growth regulators	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports
9	5	The student learns examples and applications of preparing and using different concentrations of plant growth regulators.	Examples and applications for the preparation and use of different concentrations of plant growth regulators	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports
10	5	To know the physiological effects of plant growth regulators	Physiological effects of plant growth regulators: rooting, apical dominance, dormancy in seeds and shoots.	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports
11	5	To know the physiological effects of plant growth regulators	Vegetative growth, flowering, setting and growth and development of fruits	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports
12	5	To know the physiological effects of plant growth regulators,	For maturity, aging, precipitation and the phenomenon of floating (exchange of pregnancy) تبادل	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports

13	5	Teaching students the use of growth regulators in tissue culture and micro propagation	Use of growth regulators in tissue culture and micro propagation	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports
14	5	Teaching the student foliar application system	The foliar application system and the interaction of climatic factors: heat, light, humidity, rain and wind	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports
15	5	Teaching the student the foliar application system and the interaction of climatic factors: heat, light, humidity, rain and wind	The foliar application system and the interaction of climatic factors: heat, light, humidity, rain and wind	Lecture, discussion, reports, laboratories science movies	Quick and monthly exams, class activity and reports

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	plant growth regulators. Dr. Makki Alwan Al-Khafaji .2014 Regulators of growth and flowering. Dr. Emad El Din Wasfi. 1995 Plant Hormones T. K. Davies 1995
Special requirements (include for example workshops, periodicals, IT software, websites)	Actahort.com Ashs.org Springler
Community-based facilities (include for example, guest Lectures, internship, field studies)	Journal of Biotechnology Center - Al-Nahrain University Diyala Journal of Agricultural Sciences - University of Diyala Iraqi Journal of Agricultural Sciences - University of Baghdad

13. Admissions

Pre-requisites	
Minimum number of students	10
Maximum number of students	40

course description form

Reviewing the performance of higher education institutions ((review of the academic program))

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve Demonstrating whether he has made maximum use of available learning opportunities. It must be linked to the description the program.

1. Educational Institution	University of Anbar - College of Agriculture
2. University Department/ Center	Field Crops
3. Name/Code of Course	Practical plant genetics
4. Programs that include	electronic
5. Available electronic attendance	forms
6. Semester / Year	2019-2020 autumn
7. Number of hours of study (total)	45
8. The date this description was prepared	23/2/2021
1-Course objectives Teaching genetics and its genesis and the concepts of Mendelian inheritance and its laws in the evolution of genetics on the evolution of genetics on DNA and its applications, especially in plant breeding and improvement A general introduction to genetics, its origins and development, and the future prospects for this science in finding solutions to many health problems and food productivity. Types of cellular and sexual division .	
Explain mutations, their types, causes and investment in plant breeding.	
Explanation of non-nuclear (cytoplasmic) inheritance, haplogroup inheritance, and large quantity heredity.	

Giving comprehensive and up-to-date information about DNA, its specifications, replication, cloning, and protein structure theory.

1. Learning outcomes and methods of teaching, learning and assessment

A-Knowledge and understanding:

- Definition of plant genetics, a brief review of the vocabulary of plant genetics that will be given during the semester.
- Enable students to acquire knowledge, science, and knowledge of plant cells, cell components and their functions. And how is the process of bequeathing between generations.
- Introducing students to what chromosomes are and what are their components.
- How to solve the problems of plant genetics and use them for the purpose of reaching results that can be used.
- Learn about the sciences related to plant genetics.
- Clarification of what is meant by the linkage and crossing of genes.
- Clarifying how the hereditary material and lineage are inherited, knowing the type of dominance, variations and genetic action.
- Knowledge of clan genetics and how to know the genetic frequency of a particular community.
- Learn how sex is determined in living things

b- Subject-specific skills

- Training students in the laboratory on how to extract DNA and what it consists of.
- Clarify solutions to plant genetics issues.
- Conducting special practical lessons in the laboratory to familiarize students with each of the topics of plant genetics.

Teaching and learning methods

- Providing students with the basics and lectures related to the subject.
- Using Power Point presentation methods for the purpose of communicating information well and clearly to the student, in addition to practical lessons in the field.
- Urging students to take advantage of Google search engines by asking them to submit scientific reports on the topics given to them from the study material.
- Assigning students to conduct research and practical reports.

- Assigning students to collect resources on the topic using electronic research.
- Develop training programs in coordination with higher departments.
- Develop teaching curricula by the department similar to the work environment.

C- thinking skills

- Ask deductive questions to students.
- Finding solutions to the problems and obstacles that students encounter in the practical part of the course and finding solutions to them
- Enable students to perform as many exercises and applications as possible on the topics

Evaluation methods

- Daily and monthly tests through questions on the subject of the study.
- Degrees about the student's participation in research and scientific reports.
- Students' activities through the possibility of applying some experiments at home during the urban period around the subject.

D - General and transferable skills (other skills related to employability and personal development).

- Training the student on how to use information sources to maintain and develop his basic information.
- Develop the student's style of transferring information to the work environment.
- Training the student to conduct scientific research to solve problems at work and develop its methods.

11. Course Structure

- Training the student on how to use information sources to maintain and develop his basic information.
- Developing the student's style of transferring information to the work environment.
- Training the student to conduct scientific research to solve problems at work and develop its methods.

Week	Hours	Learning Outcomes Required	Unit/course name or subject	Method of instruction	Method of assessment
1	3	plant genetics	Methods of studying genetics, characteristics of organisms used in genetic studies, types of devices used in the study of genetics		Conducting daily and monthly tests through questions about the subject of the study to determine their understanding of the subject
2	3		The use of the microscope in the study of cell, chromosome and mitosis, chromosome staining methods, problems		
3	3		Practical problems in Mendel's law		
4	3		Applied problems in the types of genetic action (dominance and its types)		
5	3		Problems using chi-square		
6	3		Problems in linkage and crossing over chromosomal mapping		
7	3		Problems in the heredity of sex		
8	3		Chromosome, its structural components,		

			methods of diagnosis and classification		
9	3		Methods of inducing replication and its diagnosis, the modus operandi of the use of collagen in replication events,		
10	3		Methods for isolating and extracting genetic material		
11	3		Methods for diagnosing and isolating genes in vitro		
12	3		Mutagens, their types, methods of use,		
13	3		Problems in cytoplasmic genetics		
14	3		Problems in the inheritance of types of sterility caused by cytoplasmic genes		
15	3		Applied problems in quantitative inheritance and problems in clan inheritance		

3. Acceptance	
Prerequisites	
Less number of students	10students
The largest number of students	50students
2. 1. Infrastructure	
Required readings: <ul style="list-style-type: none"> • Course Books • other 	<ol style="list-style-type: none"> 1- The basics of genetics: Dr. Adnan Al-Athari. 1999. Mosul University - Iraq. 2- Genetics: Abdul Latif Al-Baldawi. Baghdad 1981. 3- An introduction to heredity. Walid Khudair Al-Marani. Iraq. 1981. 4- Inheriting and breeding field crops d. Hamid Gloub Ali. 1988. Baghdad, Iraq. 5- Genetic engineering d. Abdul Hussein Al-Faisal. 1999. Amman - Jordan. 6- Gen and DNA: A Beginners Guide to Genetic and its applications. Charlotte K.Omoto and Paul F.Lurquin. Columbia University Press, New York. 2004. 7- Genetic Engineering, Principles and Methods. Volum 27. Edited by, Jane K. Stelow. Brookhaven National laboratory, New York. 2006. 8- Genetic and Molecular biology. Robert Schlieff. 2edition. 1993. 9- DNA Technology. Edward Alcamo. 2edition. Academic Press, London. 2001. 10- Principles of genetics. D.Peter Snustad and Michael J. Simmons. fifth edition. John Wiley and Sons, Inc. University of Minnesota .2011
Special requirements	
Social services (including guest lectures, professional training and field studies)	



Course description form

Reviewing the performance of higher education institutions ((review of the academic program))

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve
 Demonstrating whether he has made maximum use of available learning opportunities. It must be linked to the description the program

1. Educational Institution	
2. University Department / Center	Field Crops Department
3. Course name/code	Experiment design and analysis
The programs it enters into	Quality Assurance Manual
Available forms of attendance	weekly

season/year	Courses (second course)
Number of hours of study (total)	(30 hours theoretical + 45 practical) (75 hours)
Date of preparation of this description	2020-2021
1. Course objectives: The student will become acquainted with the scientific bases for designing and analyzing experiments, both theoretical and practical	
A- Expand the student's theoretical and practical knowledge	
b- Examine the recent experiments related to the design of experiments.	
To identify the factors and conditions related to statistics and design of experiments	
Knowing the methods of designing experiments, the processes and the circumstances surrounding the research or experiment.	

1. Learning outcomes and methods of teaching, learning and assessment
A- Cognitive goals:
1- Providing students with theoretical and practical scientific knowledge on the subject of designing experiments of all kinds.
2- Students benefit from practical experiences in the subject of designing and analyzing experiments and their relationship to various growth factors and the circumstances surrounding the experiment.



B - The skill objectives of the course:

- 1- Providing students with the required skills in designing experiments and their impact on plant growth and production.
- 2- Increasing students' awareness in identifying recent trends in the design of experiments, which include modern technologies via the computer.
- 3- Teaching students on modern methods of statistics and designing different experiments
- 4- The student deduces the relationship between the circumstances surrounding the experience of the organism and the characteristics that distinguish it from others and how to transfer those

Teaching and learning methods

- 1- The method of giving lectures regarding the theoretical framework of the subject.
- 2- The method of explanation, interpretation and linking.
- 3- Explanation method using electronic means (Data show).
- 4- Using the regular blackboard and the pen to clarify and explain some of the things that need to be clarified to the student.

Evaluation methods

- 1- Weekly exams (quiz) and quarterly and final exams (theoretical and practical).
- 2- Interaction within the lecture.
- 3- Attendance.
- 4- Commitment and discipline in the classroom and laboratory.
- 5- Preparing scientific reports and presenting them with scientific explanations.

C- thinking skills

- 1- Develop and enhance the thinking skill according to the student's ability and move him to a higher level of thinking.
- 2- Attention: Arousing the students' attention through conducting dialogue and participating in the discussion of the opinions, ideas and opinions presented.
- 3- Response: Follow up the student's response and interaction with the material that is being explained theoretically and practically.
- 4- Develop and strengthen the critical thinking strategy in learning

Teaching and learning methods

- 1- Active participation in the classroom is evidence of the student's commitment and responsibility.
- 2- The quarterly and final exams are about the commitment and achievement of knowledge and skills of the student
- 3- The student develops and discusses scientific explanations for the results of his experiments in practice and submits a report on them
- 4- Knows the role of designing experiments in the scientific method and the extent of its spread in Iraq, the Arab world and the world.



Evaluation methods

- 1- Conducting tests and examinations of all kinds.
- 2- The feedback from the students.
- 3- The way of expression through facial features
- 4- Preparing scientific reports and presenting them with scientific explanations

D - General and transferable skills (other skills related to employability and personal development).

- 1- Develop the student's ability to deal with technical means.
- 2- Team work.
- 3- Develop the student's ability to dialogue and discussion .

1. Course Structure

Evaluation method	education method	Unit name / course or topic	Required learning outcomes	hours	Week
Daily and monthly test + scores on activities, reports and attendance	Giving lectures (theoretical and practical) (e-learning and practical attendance)	Introduction to the history of statistics, the first researchers in designing experiments, studying statistical tests	Experiment Design	5 (2 نظري + 3 عملي)	1
		An introduction to the history of statistics, the first researchers in statistics and experimental design,	Experiment Design	5	2
		The importance of designing experiments for the researcher	Experiment Design	5	3
		Sources of difference in the design of experiments	Experiment Design	5	4
		Completely randomized CRD isometric design	Experiment Design	5	5
		Solve iso-repeated whole-randomized CRD exercises	Experiment Design	5	6
first month exam		Completely randomized CRD design with unequal replicates.	Experiment Design	5	7
		Solve the exercises of a complete randomized CRD isometric replication design.	Experiment Design	5	8
		Randomized complete block design (RCBD)	Experiment Design	5	9
		RCBD Randomized Complete Block Design Exercises	Experiment Design	5	10



		Relative efficiency of the RCBD design.	Experiment Design	5	11
		Missed View Rating	Experiment Design	5	12
		latin square design	Experiment Design	5	13
		split experiences	Experiment Design	5	14
second month exam		General Review	Experiment Design	5	15

1. Acceptance

1. Infrastructure

		1	<ul style="list-style-type: none"> ▪ Required readings: ▪ Course Books ▪ other
Statistical methods book for agricultural research	Dr. Khaled Mohamed Daoud Dr. Zaki Abed Yas		
Agricultural experiment design and analysis book	Dr.. Humble Mahmoud Al-Rawi Dr. Abdul Aziz Muhammad Khalaf Allah		
Book of applications in the design and analysis of experiments	Dr.. Medhat Majeed Al Sahoki Dr.. Karima Mohamed Wahib		
Arab and foreign scientific journals Online lectures			
		Special requirements	
		Social services (including guest lectures, professional training and field studies)	
		Prerequisites	
		Less number of students	
		The largest number of students	

Ministry of Higher Education and Scientific Research
Scientific Supervision and Evaluation Authority
Department of Quality Assurance and Academic Accreditation
International Accreditation Department



course description form

Reviewing the performance of higher education institutions ((review of the academic program))

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating the If he has made the most of the available learning opportunities. It must be linked to the description of the program.

1. Educational Institution	Anbar University
2. University Department / Center	field crops
3. Course name/code	legume crops
4. Programs in which it enters	academic program
5. Forms of attendance available	electronic + in person
6. Semester/year	Spring 2019 - 2020
7. Number of hours of study (total)	75 hours (30 theoretical + 45 practical)
8. Date this description was prepared	2021
9. Course objectives: - This course introduces the student to the crops of the winter and summer legume family, their scientific names, their botanical description, their economic importance, the dates and methods of their cultivation, the most important obstacles to their productivity, the environmental conditions affecting their growth and increasing their productivity, the most important pests and diseases that affect the plants of this family, and ways to combat them.	



10. Learning outcomes and methods of teaching, learning and assessment.

- 1 - Understand the nature of the work of agricultural vocabulary.
- 2 - Distinguish between each of the types of cultivation and treatment methods.
- 3- Distinguishing between three terms (land, marketing, and ultimate beneficiary)

Teaching and learning methods

- Assigning students to conduct research and reports.
- Assigning students to collect resources on the topic using electronic research.
- Develop teaching programs in coordination with higher departments.
- Develop teaching curricula by the department similar to the work environment.
- Due to the Corona pandemic, sending students to departments and directorates for the purpose of conducting the summer application has been postponed.

Evaluation methods

- Daily and monthly tests through questions on the subject of the study.
- Degrees about the student's participation in research and scientific reports.
- Student activities through the possibility of applying some laws and homework at home during the urban period around the subject.

A - - Knowledge and understanding

- 1- • Definition of pulses crops, a brief review of the vocabulary of pulses crops that will be given during the semester.
- 2- • Enabling students to obtain knowledge, science and knowledge of legume crops that are important in human nutrition.
- 3- • Introducing students to the factors affecting the growth and development of legume crops.
- 4- • Introducing students to the important soil and crop service operations in improving the productivity of legume crops in terms of quantity and quality.

b- Subject-specific skills

- 1- Training students on how to conduct field operations for these crops.
- 2- Collect fictitious or real samples of legume crops to get to know them more.
- 3- Introducing students to the problems faced by legume crops.

C- thinking skills

- 1- Ask deductive questions to students.
- 2- Finding solutions to the problems and obstacles that students encounter in
- 3-practical part of the course and finding solutions to them.
- 4-Enable students to make the largest possible number of observations related to important topics in the productivity of legume crop.

D- General and transferable skills (other skills related to employability and personal development)

- 1-Training the student on how to use information sources to maintain and develop his basic information.
- 2- Develop the student's style of transferring information to the work environment.
- 3-Training the student to conduct scientific research to solve problems at work and develop .



11. Course Structure

- Training the student on how to use information sources to maintain and develop his basic information.
- Develop the student's style of transferring information to the work environment.

Training the student to conduct scientific research to solve problems at work and develop its methods.

The week	hours	Required learning outcomes	Unit/course or topic name	education method	Evaluation method
1	5(2 +3)	legume crops	Leguminous seed crops - the importance of legumes in nutrition.	electronic	Discussion, daily exams, monthly exams
2	5(2 +3)	legume crops	symbiotic nitrogen fixation - formation of knots - cross-fertilization groups - engineering of nitrogen fixation genes.	electronic	Discussion, daily exams, monthly exams
3	5(2 +3)	legume crops	Interlaced farming.	electronic	Discussion, daily exams, monthly exams
4	5(2 +3)	legume crops	Beans - Origin - Geographical Distribution - Economic importance - Uses of Beans	electronic	Discussion, daily exams, monthly exams
5	5(2 +3)	legume crops	Nutritional value of beans - chemical composition of seeds - varieties - genetic sources.	electronic	Discussion, daily exams, monthly exams
6	5(2 +3)	legume crops	Beans breeding programs - maturity - harvest - components of the yield	electronic	Discussion, daily exams, monthly exams
first month exam					
7	5(2 +3)	legume crops	Alkaloids: their composition, composition, effects and chemical extraction methods Chickpea - Economic importance and use - Chemical composition of chickpea seeds.	electronic	Discussion, daily exams, monthly exams
8	5(2 +3)	legume crops	Varieties - Harvest - Nitrogen fixation for chickpeas methods	electronic	Discussion, daily exams, monthly exams

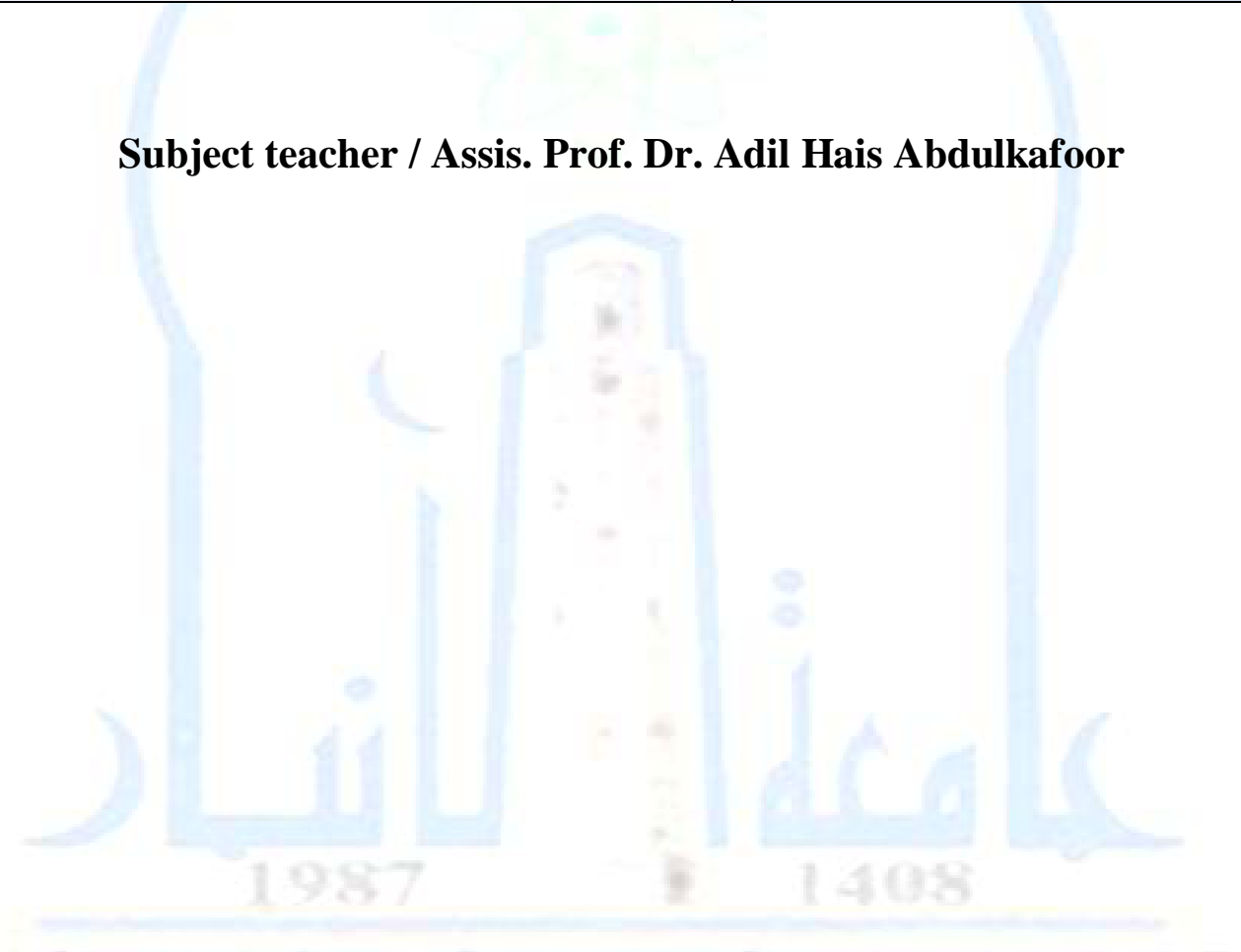
10	5(2 +3)	legume crops	Lentils - economic importance - nutritional value - maturity - harvest.	electronic	Discussion, daily exams, monthly exams
11	5(2 +3)	legume crops	Mong bean - economic importance - nutritional value - maturity - grit	electronic	Discussion, daily exams, monthly exams
12	5(2 +3)	legume crops	Beans - economic importance - nutritional value - maturity - harvest.	electronic	Discussion, daily exams, monthly exams
13	5(2 +3)	legume crops	Cowpea - economic importance - nutritional value - maturity - harvest.	electronic	Discussion, daily exams, monthly exams
14	5(2 +3)	legume crops	Soybeans - economic importance - nutritional value - maturity - harvest	electronic	Discussion, daily exams, monthly exams
15	5(2 +3)	legume crops	Field pistachios - economic importance - nutritional value - maturity - harvest. Peas - economic importance - nutritional value - maturity - harvest	electronic	Discussion, daily exams, monthly exams
second month exam					

12. Infrastructure	
<p>Required readings:</p> <ul style="list-style-type: none"> • Course Books • other. 	<p>Production of field crops, d. Salah El-Din Abdel-Razzaq Shafshak and d. Abdel Hamid Al-Sayed Al-Dababi, 2008, Dar Al-Fikr Al-Arabi, Egypt.</p> <p>1- Pulses Crops, Dr. Hamid Gloub Ali 1990 Higher Education Press - Mosul.</p> <p>2- Principles of field crop production, Martin, Leonard, and stamp, 3rd edition, Macmillan publishing company, inc 1975</p> <p>3- The wheat book, principles and practice, Ander son w.k. , and j.r. Garling. Australia. 2006.</p> <p>4- Production and Improvement of Field Crops, Dr. Abdul Hamid Ahmed Al-Younes, 1993, Directorate of Dar Al-Kutub for Printing and Publishing - Baghdad.</p> <p>5- Cereals and Pulses Crops (Practical Part), Dr. Kamel Muhammad Al-Khafaji, University of Baghdad 2009.</p> <p>6- The course vocabulary (practical) and includes the following: The characteristics of the legume family in general and the botanical description of the bean crops, chickpeas, lentils, mung, soybeans, peas, beans and hartman.</p>



13. Acceptance	
Prerequisites	
Less number of students	10
The largest number of students	50

Subject teacher / Assis. Prof. Dr. Adil Hais Abdulkafoor



TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Anbar University
2. University Department/Centre	Field crops
3. Course title/code	Oil and sugar crops
4. Programme(s) to which it contributes	All scientific fields
5. Modes of Attendance offered	Electronic (study and exams)
6. Semester/Year	Second Semester (Spring) 2020-2021
7. Number of hours tuition (total)	75 hours (30 theoretical + 45 practical)
8. Date of production/revision of this Specification	25/2/2021

9. Aims of the Course

- 1- Providing students with knowledge of the nature and function of agricultural methods from an academic and professional point of view
- 2- Understand the nature of agriculture work based on international and local statistical standards
- 3- Providing students with information related to programs and files related to farming methods
- 4 - Dissemination of knowledge in the fields of agricultural sciences and human nutrition and work on its application to serve the community.
- 5- Providing the agricultural sector with specialized cadres with expertise, knowledge and skill in the field of agriculture and production to provide food security.

10• Learning Outcomes, Teaching ,Learning and Assessment Methode

- 1 - Understand the nature of the work of agricultural vocabulary
- 2 - Distinguish between each of the types of cultivation and treatment methods
- 3- Distinguishing between three terms (land, marketing, and ultimate beneficiary)

A - Teaching and learning methods
A1. Adopting the method of giving lectures and linking each topic with examples from the reality of the work of agriculture.
A2. Giving the students some simple practical exercises that are being discussed and solved by them during the lecture and with the participation of all the students in the division with the professor to give the material a kind of interaction.
A3. Make reports on specific topics.
B- Assessment methods
B1. Through the participation of students in the lecture, based on their prior preparation of the subject.
B2. Giving them a homework exercise and asking them to bring the solution in a separate paper in the next lecture.
B3. Giving the students a case study, and dividing the students into groups to write a report about that study.
B4. Assessment through monthly exams
C- thinking skills
C1. Demonstrate students' ability to appreciate the real field of learning.
C2. Problem analysis and discussion.
C3. Giving students an opportunity to think about solving these problems.
C4. Demonstrate the ability of students to give some possibilities and other ways to solve these problems.
D - General and transferable skills (other skills related to employability and personal development).
D1. Employing computer programs to clarify the study material.
D2. Use the information he has studied in different applications.
D3. Apply this information on the ground.
D4. Link the information obtained with each other.

11.Course Structure					
week	Hours	Required learning outcomes (ILOs)	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5	Providing students with information about oil crops and their importance in providing food security	Oil crops: their definition, their economic importance, the most important crops they represent, oils and their types.	Electronic	Discussion, daily exams, monthly exams
2	5	Statement of the importance of sunflower as an oil crop	Sunflower: its importance, methods of cultivation, suitable soil for it, date of planting it, crop service,	Electronic	Discussion, daily exams, monthly exams

			harvest and pests that infect it		
3	5	Explanation of the importance of sesame as an oil crop	Sesame: methods of cultivation, its economic importance, suitable soils for it, and the service and harvest of the crop	Electronic	Discussion, daily exams, monthly exams
4	5	Statement of the importance of Pea nut as an oil crop	Pea nut: its importance, methods of cultivation, suitable soil for it, its harvest and the pests that infect it	Electronic	Discussion, daily exams, monthly exams
5	5	Explanation of the importance of soybean as an oil crop	Soybean: its importance, methods of cultivation, suitable soil for it, its harvest and pests that affect it	Electronic	Discussion, daily exams, monthly exams
6	5	Statement of the importance of safflower as an oil crop	Safflower: economic importance, origin, types and varieties, botanical description, suitable environment and soil and crop service processes	Electronic	Discussion, daily exams, monthly exams
7	First month exam				
8	5	Statement of the importance of rapeseed as an oil crop	Rapeseed: economic importance, origin, types and varieties, botanical description, appropriate environment	Electronic	Discussion, daily exams, monthly exams
9	5	Explanation of the importance of castor as an oil crop	Castor: its importance, methods of cultivation, suitable soil for it, the service of the crop and its medicinal uses	Electronic	Discussion, daily exams, monthly exams
10	5	Statement of the importance of sugar crops as strategic crops	Sugar crops: an introduction, a historical overview of sugar cane, its geographical distribution, suitable soils, and its cultivation methods.	Electronic	Discussion, daily exams, monthly exams
11	5	Explanation of the importance of sugar cane as a major crop for the production of sugar	Soil and crop service operations (hoeing, fertilization, grafting, grafting) for sugar cane plants, sugar cane breeding methods, sugar cane genetics	Electronic	Discussion, daily exams, monthly exams
12	5	Explain the importance of sugar cane as an industrial crop	Chemical components of sugarcane plants, bush control operations, diseases and insects of sugarcane plants, ripening, harvesting and production of raw sugar.	Electronic	Discussion, daily exams, monthly exams
13	5	Explanation of the importance of sugar beet as an industrial crop	Sugar beet: its economic importance, geographical distribution, development of sugar beet cultivation, the most important problems of cultivation, stages of its	Electronic	Discussion, daily exams, monthly exams

			growth and methods of breeding it		
14	5	Clarification of soil and crop service operations for the sugar beet crop	Soil and crop service factors (planting date, planting methods, seed classifications), crop service operations (mowing, weeding, fertilizing, irrigation, harvesting, yield, agricultural cycles)	Electronic	Discussion, daily exams, monthly exams
15	Second month exam				

12. Infrastructure

Required readings: <input type="checkbox"/> Course Books <input type="checkbox"/> other	1 - Mahmoud Al-Shaer and others. 2015. Oil, sugar and fiber crops 2- Al-Baldawi and others. 2014. Principles of field crop production. 3- Safar, Nasser Hussein. 1990. Oil and sugar crops. 4 - Rizk and Ali. 1981. Oil and sugar crops. 5- Lectures from the Internet.
Social services (including guest lectures, professional training and field studies)	There are practical lessons in the field to apply what students have learned in the theoretical lessons

13. Admissions

Pre - requisites	
Minimum number of students	10
Maximum number of students	50

Assis. Prof. Dr. Ismail Ahmed Sarhan

Subject teacher

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Anbar University
2. University Department/Centre	Food science
3. Course title/code	Industrial crops
4. Programme(s) to which it contributes	All scientific fields
5. Modes of Attendance offered	Electronic (study and exams)
6. Semester/Year	First semester (Autumn)2020-2021
7. Number of hours tuition (total)	75 hours (30 theoretical + 45 practical)
8. Date of production/revision of this Specification	24/12/2021

9. Aims of the Course

- 1- Providing students with knowledge of the nature and function of agricultural methods from an academic and professional point of view
- 2- Understand the nature of agriculture work based on international and local statistical standards
- 3- Providing students with information related to programs and files related to farming methods
- 4 - Dissemination of knowledge in the fields of agricultural sciences and human nutrition and work on its application to serve the community.
- 5- Providing the agricultural sector with specialized cadres with expertise, knowledge and skill in the field of agriculture and production and food storage and food science..

10. Learning Outcomes, Teaching ,Learning and Assessment Methode

- 1 - Understand the nature of the work of agricultural vocabulary
- 2 - Distinguish between each of the types of cultivation and treatment methods
- 3- Distinguishing between three terms (land, marketing, and ultimate beneficiary)

A - Teaching and learning methods

A1. Adopting the method of giving lectures and linking each topic with examples from the reality of the work of agriculture.

A2. Giving the students some simple practical exercises that are being discussed and solved by them during the lecture and with the participation of all the students in the division with the professor to give the material a kind of interaction.

A3. Make reports on specific topics.

B- Assessment methods

B1. Through the participation of students in the lecture, based on their prior preparation of the subject.

B2. Giving them a homework exercise and asking them to bring the solution in a separate paper in the next lecture.

B3. Giving the students a case study, and dividing the students into groups to write a report about that study.

B4. Assessment through monthly exams

C- thinking skills

C1. Demonstrate students' ability to appreciate the real field of learning.

C2. Problem analysis and discussion.

C3. Giving students an opportunity to think about solving these problems.

C4. Demonstrate the ability of students to give some possibilities and other ways to solve these problems.

D - General and transferable skills (other skills related to employability and personal development).

D1. Employing computer programs to clarify the study material.

D2. Use the information he has studied in different applications.

D3. Apply this information on the ground.

D4. Link the information obtained with each other.

11.Course Structure

week	Hours	Required learning outcomes (ILOs)	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5 (2+ 3)	Students' knowledge of the importance of industrial crops and their role in providing food and supplying factories with the raw materials they need	Industrial crops: an introduction with a statement of their economic importance and their role in providing food security for the individual and society.	Electronic	Discussion, daily exams, monthly exams
2	5 (2+ 3)	Statement of the importance of oil crops in food and various industries by providing vegetable oils and raw materials	First: Oil crops: their definition, their economic importance, the most important crops they represent, oils and their types, chemical and physical properties of oils and their uses.	Electronic	Discussion, daily exams, monthly exams

3	5 (2+ 3)	Statement of the importance of sunflower as an oil crop and its main contribution to human food	Sunflower: its importance, methods of cultivation, suitable soil for it, date of planting it, crop service, harvest and pests that infect it	Electronic	Discussion, daily exams, monthly exams
4	5 (2+ 3)	Students' knowledge of the importance of sesame and Pea nut as oil crops	Sesame and Pea nut: their economic importance, methods of cultivation, suitable soils for them, and crop service	Electronic	Discussion, daily exams, monthly exams
5	5 (2+ 3)	Students' knowledge of the importance of soybeans and safflower as oil crops	Soybeans and safflower: economic importance, origin, types and varieties, botanical description, suitable environment and soil and crop service operations	Electronic	Discussion, daily exams, monthly exams
6	5 (2+ 3)	Students' knowledge of the importance of rape seed and castor as oil crops	Rapeseed and castor: the economic importance, methods of cultivation, suitable soil, crop service and medicinal uses of castor	Electronic	Discussion, daily exams, monthly exams
7	First month exam				
8	5 (2+ 3)	Students' knowledge of the importance of fiber crops and their great role in various industries	Second: Fiber crops: definition, historical overview, economic importance, obstacles to their cultivation and production, properties and specifications that must be available in the filaments (fibers)	Electronic	Discussion, daily exams, monthly exams
9	5 (2+ 3)	Students' knowledge of the importance of cotton as an industrial crop and its great role in the textile industries	Cotton: its economic importance, methods of cultivation, environmental conditions suitable for its cultivation, crop service operations, harvesting operations, specifications of cotton textiles	Electronic	Discussion, daily exams, monthly exams
10	5 (2+ 3)	Statement of the importance of flax as a fibrous crop and its great contribution to many industries	lax: historical overview, economic importance, production centers in the world, varieties and types, botanical description, soil and crop service operations, stages of preparation and manufacture of flax fibers, physical and chemical properties of flax fibers.	Electronic	Discussion, daily exams, monthly exams
11	5 (2+ 3)	Statement of the importance of jute and jingle as fibrous crops and their contribution to many industries	Jute and jingle: a brief history, economic importance, types, production centers in the world, the appropriate environment for agriculture and crop service operations,	Electronic	Discussion, daily exams, monthly exams

			fiber properties.		
12	5 (2+ 3)	Students' knowledge of the importance of sugar crops and their role in revitalizing the economy through financial returns	Third: Sugar crops: an introduction, a statement of their economic importance as a cash crop, types of sugars, production and consumption of sugar globally and Arab	Electronic	Discussion, daily exams, monthly exams
13	5 (2+ 3)	Explanation of the nutritional importance of sugarcane as a strategic and cash crop in the world	Sugar cane: a historical overview, the economic importance of cane as a strategic crop, varieties and species, the appropriate environment for cultivation, soil and crop service operations, cuttings cultivation methods, sugar extraction operations, sugar cane pests.	Electronic	Discussion, daily exams, monthly exams
14	5 (2+ 3)	Explanation of the importance of sugar beet as a dual-purpose crop and its great contribution to the sugar industry	Sugar beet: introduction, economic importance, development of beet cultivation in Iraq, botanical description, agricultural processes and crop service, stages of sugar beet growth, changes in the roots after extraction, goals of sugar beet breeding, sugar beet pests.	Electronic	Discussion, daily exams, monthly exams
15	Second month exam				

12. Infrastructure

Required readings: <input type="checkbox"/> Course Books <input type="checkbox"/> other	1 - Mahmoud Al-Shaer and others. 2015. Oil, sugar and fiber crops 2- Al-Baldawi and others. 2014. Principles of field crop production. 3- Safar, Nasser Hussein. 1990. Oil and sugar crops. 4 - Rizk and Ali. 1981. Oil and sugar crops. 5 - Shaker, Iyad Talaat. 1999 . fiber crops. 6- Lectures from the Internet.
Social services (including guest lectures, professional training and field studies)	There are practical lessons in the field to apply what students have learned in the theoretical lessons

13. Admissions

Pre - requisites	
Minimum number of students	10
Maximum number of students	50

Assis. Prof. Dr. Ismail Ahmed Sarhan
Subject teacher