



## Academic Program Description Form

University Name: University of Mosul

Faculty/Institute: College of Agriculture and Forestry

Scientific Department: Department of Food Science

Academic or Professional Program Name: B.Sc.

Final Certificate Name: Food Science B.Sc.

Academic System: Semesters

Description Preparation Date: 26/2/2024

File Completion Date: 1/4/2024

Signature:

Head of Department Name:

Prof. Dr. Sumyia Khalaf Badawi

Date: 1/4/2024

Signature:

Scientific Associate Name:

Prof. Dr. Ali Farouq Al-Ma'athedi

Date: 1/4/2024



The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 1/4/2024

Signature:

Approval of the Dean

Prof. Dr. Mohamed Younis Al Allaf

### 1. Program Vision

Excellence and sophistication in academic education, leadership in community service, and quality in scientific research in the fields of food science in pursuit of international standards.

### 2. Program Mission

Contributing to achieving sustainable development by preparing a specialized agricultural engineer qualified to work in the fields of food science, committed to professional ethics, highly competent in terms of science and applied skills, and capable of meeting the needs of the local, regional and global labor market and serving the community at a competitive level through developing scientific research, self-learning and continuous-learning skills.

### 3. Program Objectives

- 1- Qualifying specialized scientific cadres trained and with scientific competencies in the field of food science who are able to face the challenges of the profession and compete with their peers in community service and meet the needs of the labor market.
- 2- Developing a stimulating modern learning environment equipped with the latest technologies and advanced equipment that enables the student to compete ,creativity and discrimination and creates in it the desire to continue continuous learning ,self-development ,skills and the ability to develop performance ,work within a team and make decisions in the field of food science.
- 3- Qualifying cadres familiar with agricultural legislation ,legal and social issues ,and commitment to work ethics and quality management related to agricultural fields , especially those related to food science .
- 4- Managing and employing resources and addressing problems in agricultural facilities and projects efficiently and well performed in the field of food science within the framework of preserving natural resources ,biodiversity and sustainable development .
- 5- Possess skills in the fields of language and computer use and develop their abilities to use the scientific and practical method in research in the field of food science and contribute to solving related agricultural problems .
- 6- It can analyze the ways in which humans ,plants and soils interact with the general environment in order to promote the conservation of natural resources and the protection of the environment .
- 7- Assesses soil and water characteristics and determines appropriate agricultural use patterns in the field of food science under different environmental conditions and under

conditions to preserve soil from degradation and water from pollution for a clean and sustainable environment .

- 8- He is familiar with the importance of healthy nutrition and the role of the dietitian in the community and nutritional care and is familiar with malnutrition diseases and epidemiology .
- 9- Makes food products adhering to quality assurance and food safety standards and evaluates them using modern technologies through the development of quality control procedures and manuals ,the implementation and management of quality systems ,the analysis of food and raw materials .
- 10- Selects the appropriate trading conditions for food products and how to control and prevent their spoilage and spoilage to ensure the highest quality and the longest shelf life .
- 11- It can ensure the continuous improvement of food products with quality and sustainability with environmental compatibility of food industrial activities ,the preparation ,selection of safe ,nutritious and healthy beverages and foods ,their preservation ,processing , packaging ,distribution and use ,and ensuring their quality ,safety and the quality of the processes produced .
- 12- Understand food systems and production ,develop food use and change skills to combat diet-related health issues and develop innovative food products in the areas of healthy eating ,athletic performance and disease prevention .
- 13- Understand food systems and production ,develop food use and change skills to combat diet-related health issues and develop innovative food products in the areas of healthy eating ,athletic performance and disease prevention .
- 14- Can use advanced technologies and convert underutilized agricultural material into bio-value-added products .
- 15- Possesses advertising and marketing skills as well as labeling ,presenting and selling food products .
- 16- Possess the skills of food and beverage waste sustainability .
- 17- Possesses the skills in harvesting and post-harvesting practices in the management of field and horticultural crop ores and conducting the necessary tests in preparation for their introduction into various industries .
- 18- Evaluate and analyze agricultural projects in the field of food science ,invest agricultural natural resources and develop plans for their development and improvement.

#### 4. Program Accreditation

Will

## 5. Other external influences

- 1- Family problems facing students negatively affect students 'performance in the academic program>
- 2- Extra-curricular activities help students achieve greater in the implementation of the academic program .
- 3- The economic situation of students and their association with money-saving work negatively affects their academic performance.
- 4- The learning efficiency of the student from his preparatory studies is one of the most important indicators of excellence in the performance of the academic program

## 6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	11	20	11.52737752	
College Requirements	11	34	19.59654179	
Department Requirements	35	118	68.87608069	
Summer Training	1			
Other				

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

## Program Description

Year/Level	Course Code	Course Name	Hours		Credit	Course Type
			theoretical	practical		
2023-2024 First Class First semester (Fall)	CHEM106	Chemistry	2	3	3.5	Department Requirement
	PRHS116	Principles of Horticultural Science	2	3	3.5	College Requirement
	PAEC115	Principles of Agricultural Economy	2	-	2	College Requirement
	MATH104	Mathmatics	2	-	2	College Requirement
	DEHR100	Democracy and Human Rights	2	-	2	University Requirement

	ENGL101	English Language 1	2	-	2	University Requirement
	ARAL102	Arabic Language 1	2	-	2	University Requirement
	ENGD118	Engineering Drawing	-	3	1.5	Department Requirement
2023-2024 First Class Second semester (Spring)	ANCH107	Analytical Chemistry	2	3	3.5	Department Requirement
	PRAP114	Principles of Animal Production	2	3	3.5	College Requirement
	PRFI111	Principles of Food Industry	2	3	3.5	College Requirement
	PREW133	Principles of Engineering workshops	2	3	3.5	Department Requirement
	STAT109	Statistical	2	3	3.5	College Requirement
	COMA103	Computer Application 1	2	-	2	University Requirement
	PRSS113	Principles of Soil Science	2	3	3.5	College Requirement
2023-2024 Second Class First semester (Fall)	ORCH105	Organic Chemistry	2	3	3.5	College Requirement
	PRMB205	Principles of Microbiology	2	3	3.5	College Requirement
	INCR230	Industrial Crops	2	3	3.5	Department Requirement
	PRPD227	Principles of Dairy	2	3	3.5	Department Requirement
	DAAE302	Design and analysis of agricultural experiments	2	3	3.5	Department Requirement
	COMA203	Computer Application 2	2	-	2	University Requirement
	PAEX206	Principles of agricultural extension	2	-	2	College Requirement
	CBAP200	Crimes of the defunct Baath Party	2	-	2	University Requirement
2023-2024 Second Class Second semester (Spring)	PHCH108	Physics Chemistry	2	3	3.5	Department Requirement
	BICH204	Biochemistry	2	3	3.5	College Requirement
	STPP419	Stored Products Pests	2	3	3.5	Department Requirement
	FOSA238	Foods sanitation	2	3	3.5	Department Requirement

	<b>FOFM239</b>	Food Factories Management	2	-	2	Department Requirement
	<b>FOFE240</b>	Food Factories Engineering	2	3	3.5	Department Requirement
	<b>ENGL201</b>	Arabic Language 2	2	-	2	University Requirement
	<b>ARAL202</b>	English Language 2	2	-	2	University Requirement
<b>2023-2024 Therd Class First semester (Fall)</b>	<b>FOCH364</b>	Food Chemistry	2	3	3.5	Department Requirement
	<b>CETE365</b>	Cereal Technology	2	3	3.5	Department Requirement
	<b>MOBI435</b>	Molecular Biology	2	3	3.5	Department Requirement
	<b>FOMI366</b>	Food Microbiology	2	3	3.5	Department Requirement
	<b>PRHN367</b>	Principles of Human Nutrition	2	-	2	Department Requirement
	<b>TEDS368</b>	Technology of dates and sugar	2	3	3.5	Department Requirement
	<b>AGMA442</b>	Agricultural Marketing	2	-	2	Department Requirement
<b>2023-2024 Therd Class Second semester (Sipring)</b>	<b>DACH369</b>	Dairy Chemistry	2	3	3.5	Department Requirement
	<b>BRPA370</b>	Bread and pastries	2	3	3.5	Department Requirement
	<b>GEEN371</b>	Genetics Engineering	2	3	3.5	Department Requirement
	<b>DAMI372</b>	Dairy Microbiology	2	3	3.5	Department Requirement
	<b>MEPA373</b>	Metabolic Pathways	2	3	3.5	Department Requirement
	<b>LIDP374</b>	Liquid Dairy Products	2	3	3.5	Department Requirement
<b>2023-2024 Fourth Class First semester (Fall)</b>	<b>FOTE465</b>	Food technology 1	2	3	3.5	Department Requirement
	<b>CHPR466</b>	Cheese Processing	2	3	3.5	Department Requirement
	<b>BITE467</b>	Biotechnology 1	2	3	3.5	Department Requirement
	<b>FOAN468</b>	Food Analysis	2	3	3.5	Department Requirement
	<b>MEFT469</b>	Meat and fish Technology	2	3	3.5	Department Requirement
	<b>HSHC405</b>	Handling and storage of	2	3	3.5	Department Requirement

		Horticultural Crops				
	REPR402	Research Project 1	-	3	1.5	University Requirement
2023-2024 Fourth Class Second semester (Sipring)	FOPR470	Food Processing 2	2	3	3.5	Department Requirement
	BUIC471	Butter and Ice cream	2	3	3.5	Department Requirement
	BIOTE472	Biotechnology 2	2	3	3.5	Department Requirement
	QUCO473	Quality Control	2	3	3.5	Department Requirement
	THNU474	Therapeutic nutrition	2	3	3.5	Department Requirement
	SEMN404	Seminar	1	-	1	University Requirement
	REPR403	Research Project 2	-	3	1.5	University Requirement

## 7. Expected learning outcomes of the program

Knowledge	
A1	The student should be able to demonstrate proper knowledge and understanding of the Arabic language ,teaching and developing it and generalizing its use as a scientific and educational language in various scientific and cognitive fields.
A2	values core its and culture s'university the of foundations the clarify to able be should student The .citizenship and belonging ,cooperation ,equality ,justice ,transparency ,accountability of
A3	The student should be able to explain the principles of human rights and democracy and their role in achieving effective partnership with all segments of society
A4	The student should be able to demonstrate sound knowledge and understanding of the English language ,teach ,publish ,develop and use it for scientific and educational purposes in various scientific and cognitive fields
A5	The student should be able to explain biodiversity and its importance and how to preserve natural resources in the environment
A6	The student should be able to familiarize himself with the basics of basic and applied sciences , modern technologies related to agriculture and food ,and the principles of planning and implementing agricultural operations.
A7	The student should be able to explain the basics of applied sciences related to agricultural sciences ,food ,natural resources ,environment and biological systems
A8	The student should be able to show the foundations and principles of basic sciences and their applications in agricultural sciences ,food technology and nutrition ,explaining the chemical composition of food contents ,their interactions ,food spoilage factors ,and appropriate preservation and manufacturing methods.
A12	The student should be able to explain the nutritional requirements and meal planning for different groups during the stages of life in health and disease

A14	The student should be able to clarify biodiversity and its importance in preserving the natural material ,indicating the importance of safety and quality of agricultural and food products and related quality and safety programs to meet food laws and legislations
A16	The student should be able to clarify the basic stages and elements of planning and implementing agricultural and cultural operations and activities in agricultural communities
A25	The student should be able to demonstrate the basics of designing irrigation systems and post-harvest transactions according to the concepts and elements of quality and safety management in the field of agriculture and food such as drying ,pasteurization ,storage and manufacturing
A26	The student should be able to enumerate the chemical groups of pesticides ,taking into account local and international legislation and controls learned safety standards for their use and their impact on the quality and safety of agricultural and food products
A27	The student should be able to explain the processes related to the quality of food and nutrition services management
A28	The student should be able to clarify the concept of assessing the nutritional status and food security of the individual and society and the relationship of food to human health
A29	The student should be able to show the human needs of nutrients ,their main functions of the body ,their nutritional sources ,the impact of inadequacy and increased intake.
A30	The student should be able to identify and regulate energy requirements ,estimate food energy , and plan meals for different groups during the stages of life in health and disease
A31	The student should be able to describe food metabolism and nutrient use
A32	The student should be able to explain the role of different living organisms in food production , how to control and control their growth ,the impact of environmental factors ,and the health aspects of food establishments
A33	The student should be able to define the principles of planning and implementing agricultural and industrial operations to produce safe and high quality food.
A34	The student should be able to describe the natural properties of food components and sensory properties ,their interactions ,and how to control these reactions
A35	The student should be able to explain the basics of manufacturing and preserving food products and the properties and uses of food packaging materials
A36	The student should be able to explain how to recycle food industry waste
A37	The student should be able to familiarize himself with the methods of food processing ,food preservation ,and the basics of transporting and handling foodstuffs
A39	The student should be able to explain the concepts and elements of quality and safety management in the field of agriculture and food ,and the terms of agricultural operations and their synonyms commonly used in the countryside
<b>Skills</b>	
B1	The student should be able to practice various thinking skills systematically and positively in diagnosing the problems and issues he faces during work and proposes appropriate solutions to them
B2	The student should be able to express his ideas clearly and objectively ,and dialogue positively with his colleagues ,superiors and subordinates at work
B3	The student should be able to discuss and evaluate studies and research related to community issues in a systematic and objective manner
B4	The student should be able to propose commercial production plans for plant ,animal and food crops in accordance with market systems by assessing the economic situation of the market and knowing its needs



B6	The student should be able to distinguish the structure of living organisms in terms of cell ,tissues , organs ,their functions and the interactions that occur in them
B7	The student should be able to assess the nutritional needs of different age groups in health and disease ,acquiring the skills of analyzing food ,dairy and its products ,and estimating their quality and safety
B25	The student should be able to discuss the nutritional needs and prepare and plan meals for different age groups in health and disease
B26	The student should be able to formulate plans and strategies to meet the nutritional needs of the monkey and the community
B27	The student should be able to discuss the relationship between good nutrition and malnutrition to find the most appropriate solutions and methods of nutritional treatment
B28	The student should be able to link the importance of food laws ,regulations ,legislation ,quality programs and health conditions in ensuring food safety and quality
B29	The student should be able to analyze data and information related to agricultural ,food and nutritional problems to find the most appropriate solutions
C1	The student should be able to design scientific experiments to solve agricultural problems through the application of modern technologies related to agricultural operations and food production
C3	The student should be able to prepare research and scientific studies in his field of specialization in Arabic and English
C7	The student should be able to efficiently employ modern technologies related to agricultural operations and food production to develop and improve the food product and apply the correct specifications and standards in the field of food science ,nutrition ,analysis and composition of food and the changes that occur in it
C9	The student should be able to carry out applied research ,and use statistical programs in experimental design and data analysis in the field of food and nutrition research
C11	The student should be able to practically carry out some scientific research on pests ,pathogens and their families to derive resistance from them during all stages of production and storage to reach sustainable agricultural development
C18	The student should be able to practice good agricultural transactions that ensure the safety of the environment ,maximize agricultural productivity ,produce safe food and preserve the environment
C20	The student should be able to apply modern and appropriate technology in agricultural operations ,food production ,apiary management ,honey production ,pest control ,and attention to silkworms for silk production.
C28	The student should be able to calculate the requirements and nutritional needs and prepare meals for different age groups in health and disease.
C30	The student should be able to carry out research in the field of nutrition to increase the quality of nutritional care
C31	The student should be able to practice various methods to assess the nutritional status of humans , such as physical ,laboratory and clinical measurements
C32	The student should be able to use nutritional care methods to make reports ,to describe nutrition-related problems ,and to estimate and evaluate nutritional interventions
C40	The student should be able to manage the yield and raw materials of various field crops and perform the necessary tests for their entry into the food and other industries
D3	The student should be able to communicate in Arabic and English fluently and effectively in his field of specialization

D4	The student should be able to develop his cognitive ,professional and research abilities in his field of specialization on his own
D5	The student should be able to acquire the skills of planning ,organizing ,managing and organizing time and leading groups in a satisfactory manner
D7	The student should be able to work with his colleagues in a team spirit ,and the possibility of communicating with others
D8	The student should be able to present information and explain phenomena orally or in writing
D10	The student should be able to demonstrate self-learning and continuous abilities to develop his professional knowledge and skills
D12	The student should be able to use information technology to obtain data and information easily and easily to serve the practice of the profession and enable him to present information in correct scientific ways
D14	The student should be able to keep pace with the requirements of the labor market through familiarity with modern developments in the field of food science and human nutrition
D22	The student should be able to have the ability to manage human resources and create a cooperative work environment
<b>Ethics</b>	
E2	The student should be able to contribute to enhancing the understanding and awareness of the meaning of professionalism at work and taking legal ,moral and social responsibility
E5	The student should be able to take responsibility for completing the work efficiently and be keen on professional ethics
E7	The student should be able to evaluate ethical issues using critical thinking skills

## 8. Teaching and Learning Strategies

Interactive lecture ,brainstorming ,dialogue and discussion ,field training ,practical exercises ,self-learning ,presentation of models of fresh ,canned and damaged food.

## 9. Evaluation methods

Quizzes ,Quarterly Exams ,Report Evaluation Discussion Evaluation ,Research Report Evaluation

## 10. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)	Number of the teaching staff	
	General	Special		Staff	Lecturer
Professor	-	1		1	-
Assistant Professor	-	6		6	-
Lecturer	-	11		11	-
Assistant Lecturer	-	8		8	-

### Professional Development

#### Mentoring new faculty members

- 1- Developing the skills of enhancing self-confidence ,a positive orientation towards a culture of quality and requirements ,enhancing a sense of responsibility ,believing in the spirit of teamwork and its role in achievement ,and developing a sense of employment and moral scruples .
- 2- Evaluate courses and plans in coordination with the scientific departments to ensure that they meet the requirements of the labor market .
- 3- Possess student counseling skills .
- 4- The ability to produce educational materials according to quality specifications ,including courses ,media ,lectures and educational supplies

#### Professional development of faculty members

- 1- Developing educational skills through diversifying teaching methods ,positively dealing with and practicing feedback ,using educational technologies ,and focusing on developing intellectual and competitive skills among students
- 2- .Developing the skills of dealing with problems and phenomena affecting the progress of the educational process in the college
- 3- Develop the ability to evaluate courses and plans in coordination with scientific departments to ensure that they meet the requirements of the labor market .
- 4- Developing the ability to measure the satisfaction of beneficiaries) faculty members , students ,community (with the educational and research process in the college
- 5- Evaluating tests and methods of evaluating students ,and preparing reports to follow up on their results

### 11. Acceptance Criterion

- 1- Students are admitted to the college's programs centrally through the Central Admission Department at the Ministry of Higher Education and Scientific Research and according to the application channels approved by the Ministry .
- 2- Students are distributed to the department's program according to the average and the desire of the students .
- 3- To be physically and healthily fit based on the medical examination report
- 4- Advanced student average according to the minimum averages approved by the Ministry

### 12. The most important sources of information about the program

- 1- The main source of information for the program is the minutes of the committee of experts of the departments corresponding to the Department of Food Science and approved as a scientific body by the Committee of Deans of Faculties of Agriculture .
- 2- The study prepared by the Scientific Committee and the Department Council and approved by the College Council ,which includes proposals to modernize agricultural disciplines and simulate the three most important corresponding scientific departments accredited globally .
- 3- Local and regional market needs

### 13. Program Development Plan

A plan was developed to develop the program after studying the internal audit observations by the teachers ,the quality assurance committees ,the scientific committee in the department ,the department council ,the external review of the program ,and the students ' observations by analyzing the results of student questionnaires for courses ,the observations of academic advisors ,analyzing the data of the questionnaires of the questionnaires committee in the college ,and the evaluation reports of the exam questions for all courses of the program ,which are as follows:

- 1- Insufficient practical training
- 2- The lack of a clear mechanism to help struggling students and motivate outstanding student
- 3- Students 'lack of knowledge of the university regulations governing the educational process
- 4- Incompatibility of the success rates of some courses with the normal distribution scheme

