Academic Program Description Form

PhD Program in Food Scince

University Name: University of Mosul
College / Institute: College of Agriculture and Forestry
Scientific Department: Department of Food Scince
Academic Program Name: PhD of Food Scince
Final Degree Name: PhD of Food Scince
Study System: Semester (Course) System
Program Accreditation: None
Description Preparation Date: 1/9/2025
File Completion Date: 1/9/2025

Head of Department
Asst. Prof. Dr. Taha Mohammed Taki
Signature:
Date: 1/9/2025

Associate Dean for Scientific Affairs
Prof. Dr. Hamid Hammoud Ali
Signature:
Date: 1/9/2025

The file was audited by Quality Assurance and University Performance Evaluation Division

Name of the Director of the Quality Assurance and University Performance Evaluation Division
Assistant Lecturer: Oday Abdulhadi Adday
Quality Assurance Unit Officer: Asst. Prof. Dr. Ramia Amer Khalil
Signature
Date:1/9/2025

A.M.

Approval of the Dean
Prof. Dr. Ali Farouq Al-Ma'athedi

1. Program Vision

To achieve leadership in applied education and scientific research in the field of food science, excelling in the preparation of highly competent graduates, and actively contributing to food security, sustainability, and community service at both local and regional levels.

2. Program Mission

The Department of Food Science is committed to preparing graduates who are distinguished both academically and practically, equipped with modern applied and professional skills, and dedicated to professional ethics and sustainability. This is achieved through a stimulating educational and research environment that meets labor market needs and contributes to community service.

3. Program Objectives

1. Enable graduates to master fundamental and advanced concepts in food science and apply them practically in food manufacturing and analysis sectors, allowing them to perform professionally within the first three years after graduation.
2. Develop students' abilities to design and implement research projects and to innovate food products using modern technologies, with the aim of increasing their participation in scientific conferences and events by 30% during their study period.
3. Strengthen students' commitment to professional values and ethics by integrating topics of professional conduct and safety across all applied courses, with a target compliance rate of no less than 90% in practical behavioral assessments.
4. Prepare graduates with effective communication, teamwork, and problem-solving skills through group projects, scientific presentations, and field reports, evaluated at least twice throughout the program.
5. Encourage students to engage in lifelong learning and professional self-development by participating in accredited training programs or online learning platforms, with a minimum participation rate of 60% before graduation.

4. Program Accreditation

None.

5. Other External Influences

The PhD program in Food Science is influenced by labor market demands and the needs of academic and research institutions, as well as the public and private sectors involved in food industries, food safety, and food quality. It is also shaped by the rapid scientific and technological advancements in food chemistry, food analysis techniques, food biotechnology, food processing, food safety, and nutrition. Furthermore, the program adheres to national legislation, local and international standards related to food safety and quality, food security and sustainability requirements, responses to health and environmental challenges, and international scientific publishing standards. This ensures that its graduates meet societal needs and contribute to sustainable economic and agricultural development plans.

6. Program Structure

Program Structure	No. of ourses	Credit Units	Percentage	Notes
Institution Requirements				
College Requirements	5	4	%14.3	Core (Computer and English are required courses)
Department Requirements	8	24	%85.7	4 core courses + 4 elective courses
Master's. Thesis		32		Spread over two research years + the comprehensive exam

* Graduation Requirements: Completion of (60) credit hours distributed as follows: (13 credit hours for the first semester + 15 credit hours for the second semester during the preparatory year) + passing the comprehensive examination + (32) credit hours for the doctoral dissertation research, distributed over the two research years (each semester).

** Notes may indicate whether a course is required or elective.

7. Program Description (Courses)2025-2026

Level / Year	Course Code	Course Title	Requirement	Credit Hours
Preparatory Year First Semester	Ag.Co. 703	Computer Science 3	Core	Complete
	Ag.Co. 701	Seminars 2	Core	1 Theory
	Ag.F.701	Food Proteins 1	Core	2 Theory + 3 Practical
	Ag.F. 702	New Technology in Food Processing 1	Core	2 Theory + 3 Practical
	—	Elective Course (1)	Elective	2 Theory + 3 Practical
	—	Elective Course (2)	Elective	2 Theory + 3 Practical
Preparatory Year Second Semester	Ag.Co. 702	English Language 3	Core	Complete
	Ag.Co. 701	Seminars 3	Core	2 Theory
	Ag.F.703	Food Proteins 2	Core	2 Theory + 3 Practical
	Ag.F.704	New Technology in Food Processing 2	Core	2 Theory + 3 Practical
	Ag.Co.726	Research Methodology 2	Core	2 Theory
	—	Elective Course (1)	Elective	2 Theory + 3 Practical
		Elective Course (2)	Elective	2 Theory + 3 Practical
Elective courses (chosen according to the research track)				
Dairy and Food Biology	Ag.F.705	Functional Foods and Probiotics	Elective	2 Theory + 3 Practical

Dairy and Food Biology	Ag.F.706	Food Microbiology 2	Elective	2 Theory + 3 Practical
Dairy Technology	Ag.F.707	Dried and Condensed Milk	Elective	2 Theory + 3 Practical
Nutrition	Ag.F.708	Metabolism	Elective	2 Theory + 3 Practical
Dairy Technology	Ag.F.709	Ice Creams and Creams	Elective	2 Theory + 3 Practical
Dairy Biology	Ag.F.710	Dairy Starters	Elective	2 Theory + 3 Practical
General	Ag.F.711	Automatic Analysis and Separation	Elective	2 Theory + 3 Practical
Dairy and Food Biology	Ag.F.712	Food Fermentation	Elective	2 Theory + 3 Practical
Dairy and Food Biology	Ag.F.713	Food Poisoning	Elective	2 Theory + 3 Practical
Nutrition	Ag.F.714	Human Nutrition 2	Elective	2 Theory + 3 Practical
General	Ag.F.715	Quality Control	Elective	2 Theory + 3 Practical
General	Ag.F.716	Packaging Technology	Elective	2 Theory + 3 Practical
General	Ag.F.717	Flavoring Technology	Elective	2 Theory + 3 Practical
Dairy Technology	Ag.F.718	Fat Dairy Products	Elective	2 Theory + 3 Practical
Nutrition	Ag.F.719	Physiology	Elective	2 Theory + 3 Practical
Dairy and Food Biology	Ag.F.720	Microbiological Physiology	Elective	2 Theory + 3 Practical
General	Ag.F.721	Food Carbohydrates	Elective	2 Theory + 3 Practical
General	Ag.F.722	Physics and Biochemistry	Elective	2 Theory + 3 Practical
Food Technology	Ag.F.723	Food Lipids	Elective	2 Theory + 3 Practical
Dairy Technology	Ag.F.724	Dairy Lipids	Elective	2 Theory + 3 Practical
Dairy Technology	Ag.F.725	Dairy By-Products	Elective	2 Theory + 3 Practical
Graduate students choose their elective courses from a list of elective courses or any course prescribed in the college or university, according to their academic interests.				
Two research years				
Second and third year	PhD thesis (32 units) + comprehensive exam			

Expected Program Learning Outcomes	
Student Learning Outcomes (SLOs):	
First: Knowledge and Understanding	
Code	Learning Outcome
A1	The student will learn fundamental and advanced concepts in food science and apply theoretical knowledge to solve problems related to food safety, public health, and relevant legislation.
A2	They will identify complex problems in food technology and understand how to address them based on acquired knowledge.
A3	They will learn the basics of food project design and management and propose practical ideas that support sustainability in the food sector.
Second: Intellectual (Cognitive) Skills	
Code	Learning Outcome
B1	It selects modern design methods and techniques to address challenges in food production and its various stages under specific conditions.
B2	It uses scientific knowledge to determine appropriate preservation methods and suitable packaging materials for food products.
Third: Professional (Practical) Skills	
Code	Learning Outcome
C1	Employs modern tools and techniques in food analysis and conducts laboratory experiments to interpret results and ensure quality and safety.

C2	Manages food manufacturing or processing operations in real-world environments and ensures compliance with quality standards.

Fourth: Communication & Information Technology Skills (General and Transferable Skills)

Code	Learning Outcome
D1	Communicates effectively both orally and in writing, works collaboratively within multidisciplinary teams, and presents work results professionally.
D2	Keeps abreast of changes and developments in food science and nutrition and translates them into professional skills relevant to the job market.
Values	
E1	Takes individual and collective responsibility for task execution and adheres to professional ethics and sustainability practices.
E2	Continuously develops professionally and recognizes the importance of lifelong learning in the fields of food and related regulatory frameworks.

Teaching and Learning Strategies

1. Advanced interactive lectures to present theories and concepts at the forefront of the discipline.
2. Scientific seminars to develop critical thinking and discuss the latest research developments.
3. Advanced laboratory and field training in diagnosis, isolation, molecular techniques, and specialized analyses.
4. Research-based learning and project-based thesis preparation under direct scientific supervision.
5. Scientific presentations and discussions to develop communication skills, academic engagement, and international publication capabilities.
6. E-learning and blended learning, utilizing databases and digital scientific platforms.

Assessment Methods

Short tests, term exams, evaluation of seminars, evaluation of scientific reports and discussions, evaluation of research and research projects, comprehensive exam, and evaluation and public discussion of thesis.

Teaching Staff

Academic Rank	General Specialization	Specific Specialization	Special Requirements / Skills	Staff	Lecturer
Professor		1		1	2
Assistant Professor	2	5	2	5	

Lecturer		12		12	
Assistant Lecturer		11		11	

Professional Development
Orientation of new faculty members:
Teaching in the program requires that the faculty member hold an academic rank of at least assistant professor and meet the applicable supervision requirements.
Professional development of faculty members:
1. Organizing regular training programs in modern teaching methods and active learning. 2. Developing research skills and publishing in reputable international journals (Scopus/Clarivate). 3. Training faculty members on educational technologies and digital platforms. 4. Enhancing academic supervision skills for graduate students. 5. Participating in local and international scientific workshops and conferences. 6. Supporting research collaborations with specialized centers and universities.

Admission Criteria
1. The applicant must hold a Master's degree in Food Science from an Iraqi university or a recognized international university. 2. The applicant must pass the competitive entrance exam administered by the department, along with a personal interview. 3. The applicant must possess a certificate of proficiency in English and computer skills, as per the graduate studies regulations. 4. The applicant must pass the comprehensive examination during the course of study, as per the university's regulations.

Main Sources of Information about the Program
The official website of the college/university. Academic Program Guide Course Descriptions Student Academic Advising Guide University Graduate Studies Instructions

Previous Graduate Theses and Dissertations
Workshops, Seminars, and Academic Conferences Related to the Program

Program Development Plan

1. Regularly updating curricula to align with scientific and technological advancements in food science.

2. Strengthening research and applied learning, and linking courses to real-world agricultural problems and research projects.

3. Developing research infrastructure and modernizing laboratories, equipment, and molecular technologies.

4. Enhancing faculty development through professional development, continuous training, and academic exchange programs.

5. Promoting international publications and encouraging applied research with a direct impact on the agricultural sector.

6. Expanding scientific partnerships with local and international universities and research centers.

Curriculum Map: Consistency Matrix of Courses vs. Program Learning Outcomes

Course code	Course Name	A 1	A 2	A 3	B 1	B 2	C 1	C 2	D 1	D 2	E 1	E 2
Basic college requirements												
Ag.F.703	Food Proteins 2	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Ag.F.704	New Technology in Food Processing 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ag.Co.726	Research Methodology 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
بحث الدكتوراه	Doctoral Research	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Basic department requirements												
Ag.F.705	Functional Foods and Probiotics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ag.F.706	Food Microbiology 2	✓	✓		✓	✓	✓	✓		✓	✓	✓
Ag.F.707	Dried and Condensed Milk	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Ag.F.708	Metabolism	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Ag.F.709	Ice Creams and Creams	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Ag.F.710	Dairy Starters	✓	✓		✓	✓	✓	✓		✓	✓	✓
Ag.F.711	Automatic Analysis and Separation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ag.F.712	Food Fermentation	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Ag.F.713	Food Poisoning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ag.F.714	Human Nutrition 2	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Ag.F.715	Quality Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ag.F.716	Packaging Technology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ag.F.717	Flavoring Technology	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Ag.F.718	Fat Dairy Products	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Ag.F.719	Physiology	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Ag.F.720	Microbiological Physiology	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Ag.F.721	Food Carbohydrates	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Ag.F.722	Biochemical Physics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ag.F.723	Food Lipids	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Ag.F.724	Dairy Lipids	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Ag.F.725	Dairy By-Products	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note: The core courses ensure coverage of all program learning outcomes, while the elective courses strengthen the student's specialization according to their scientific orientation. Contribution marks remain subject to review by course instructors in light of the approved syllabi