

Course Description Form

1. Course Name:					
Advanced Dairy microbiology					
2. Course Code:					
Ag.F.606					
3. Semester / Year:					
Second semester (spring) / 2025–2026					
4. Description Preparation Date:					
1/2/2026					
5. Available Attendance Forms:					
Presence					
6. Number of Credit Hours (Total) / Number of Units (Total)					
2 theoretical hours + 3 practical hours (75 hours)/ 3.5 units					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Shaymaa Jawad Mahmood					
8. Course Objectives					
1. To enable the student to understand everything related to dairy microorganisms. 2. To enable the student to identify the sources of microbiological contamination of milk and its products. 3. To enable the student to become familiar with the genera of lactic acid bacteria. 4. To enable the student to understand methods for eliminating organisms that contaminate dairy products. 5. To enable the student to become familiar with the most important laboratory methods for detecting dairy microorganisms and practical experiments to diagnose organisms that contaminate dairy products.					
9. Teaching and Learning Strategies					
1. Interactive lecture 2. Brainstorming 3. Dialogue and discussion 4. Assigning reports 5. Conducting monthly and daily exams 6. Self-learning 7. Practical exercises					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2Theoretical 3Practical	Theoretical: a1: The student becomes familiar with the concept of microbiology and	Theoretical Milk as a growth medium Microscopic	THEORETICAL audio methods, Writing on the board	Shortexams, assignments, discussions

		related topics. Practical: b1: The student acquires the practical and intellectual knowledge and concepts that will help him/her in the field of microbiology.	microbes Practical Samples are prepared for examination Microbial	Direct dialogue style PRACTICAL Assigning tasks and reports	
2	2Theoretical 3Practical	Theoretical: a1: The student becomes familiar with the concept of microbiology and related topics. Practical: d1: Acquire skills in handling laboratory tests related to microbiology.	Theoretical Sources of milk contamination With microbes Practical Dye Reduction assays	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
3	2Theoretical 3Practical	Theoretical: a1: The student becomes familiar with the concept of microbiology and related topics. Practical: b1: The student acquires the practical and intellectual knowledge and concepts that will help him/her in the field of microbiology.	Theoretical Lactic acid bacteria genera Practical Methods for Detecting coli bacteria	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
4	2Theoretical 3Practical	Theoretical: b2: The student is familiar with the most important types of fungi and viruses related to dairy products. Practical: c1: Uses the information and available techniques to master their work and employs them appropriately for various analytical processes.	Theoretical For important microbes in Milk and its products - molds - Yeasts - viruses Practical Standard method of detection coli bacteria	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
5	2Theoretical 3Practical	Theoretical: b2: The student will become familiar with the most important types of fungi and viruses related to dairy products. Practical: d1: Acquire skills in	Theoretical Important microbe in Milk and its products - molds - Yeasts - Viruses Practical IMVC tests	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions

		handling laboratory tests related to dairy microbiology.			
6	2Theoretical 3Practical	Theoretical: a1: The student becomes familiar with the concept of microbiology and related topics. Practical: d1: Acquire skills in handling laboratory tests related to microbiology.	Theoretical Ways to control Milk microbes Practical Methods for counting milk bacteria	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
7	2Theoretical 3Practical	Theoretical: a1: The student becomes familiar with the concept of microbiology and related topics. Practical: d1: Acquire skills in handling laboratory tests related to microbiology.	Theoretical Natural inhibitors In the milk Practical Sources of raw milk contamination	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
8	2Theoretical 3Practical	Theoretical: a1: The student becomes familiar with the concept of microbiology and related topics. Practical: c1: Uses the information and available techniques to master their work and employs them appropriately for various analytical processes.	Theoretical Market milk microbiology Practical Scientific visit	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
9	2Theoretical 3Practical	Theoretical: a1: The student becomes familiar with the concept of microbiology and related topics. Practical: b1: The student acquires the practical and intellectual knowledge and concepts that will help him/her in the field of microbiology.	Theoretical Microbiology of primers Practical Tests of milk produced from infected livestock Udder	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
10	2Theoretical 3Practical	Theoretical: a1: The student becomes familiar with the concept	Theoretical Dairy microbiology Fermented and	THEORETICAL audio methods, Writing on the	Shortexams, assignments, discussions

		of microbiology and related topics. Practical: b1: The student acquires the practical and intellectual knowledge and concepts that will help him/her in the field of microbiology.	therapeutic Practical Raw milk tests And pasteurized milk	Board Direct Dialogue style PRACTICAL Assigning tasks and reports	
11	2Theoretical 3Practical	Theoretical: a1: The student becomes familiar with the concept of microbiology and related topics. Practical: b1: The student acquires the practical and intellectual knowledge and concepts that will help him/her in the field of microbiology.	Theoretical Microbiology of cream and butter Practical Microbial examination of butter And cream	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
12	2Theoretical 3Practical	Theoretical: a1: The student becomes familiar with the concept of microbiology and related topics. Practical: b1: The student acquires the practical and intellectual knowledge and concepts that will help him/her in the field of microbiology.	Theoretical Cheese microbiology Practical Microbial examination of cheese	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
13	2Theoretical 3Practical	Theoretical: a1: The student becomes familiar with the concept of microbiology and related topics. Practical: b1: The student acquires the practical and intellectual knowledge and concepts that will help him/her in the field of microbiology.	Theoretical Milk microbiology Desiccant dryer and condenser Practical Microbial examination of milk Dry	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
14	2Theoretical 3Practical	Theoretical: a1: The student becomes familiar with the concept of microbiology and related topics. Practical: b1: The student acquires the practical and intellectual knowledge and concepts that will help him/her in the field of microbiology.	Theoretical Ice cream microbiology Lactobacillus Practical Microbial examination ice cream	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
15	2Theoretical 3Practical	Theoretical: a1: The student becomes familiar with the concept	Theoretical Curriculum review Practical	THEORETICAL audio methods, Writing on the	Shortexams, assignments, discussions

		of microbiology and related topics. Practical: b1: The student acquires the practical and intellectual knowledge and concepts that will help him/her in the field of microbiology.	Reference and discussion	Board Direct Dialogue style PRACTICAL Assigning tasks and reports	
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11. Course Evaluation

t	Evaluation methods	Evaluation date (one week)	Grade	Relative weight %
1	Final theoretical report + theoretical practical reports	Theoretical 15 weeks Practical 1-15 weeks	7theoretical + 6 practical	13%
2	Short test 1 Quiz	3 weeks	4theoretical + 2practical	6%
3	Midterm exam (theoretical and practical)	9 weeks	10theoretical + 5 practical	15%
4	Short test 2 Quiz	12 weeks	4 theoretical + 2 practical	6%
5	Final practical test	practical exams week	20	20%
6	Final theoretical exam	theoretical exams week	40	40%
			100	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Dairy microbiology, Robinson Principles of microbiology / Dr. Fayez Al-Ani And Dr. Amin Suleiman Badawi
Recommended books and references (scientific journals, reports...)	Introductory Dairy Microbiology by A. K. Puniya
Electronic References, Websites	Internet sites for specialized topics Search Google

مدرس المادة

Dr.Shaymaa Jawad Mahmood

رئيس قسم علوم الاغذية

رئيس اللجنة العلمية



Handwritten signature of Dr. Shaymaa Jawad Mahmood.

Official stamp of the Department of Food Science, Faculty of Agriculture, University of Babylon, Iraq. The stamp is rectangular with the department name in Arabic and English, and the faculty name in Arabic.

Course Description Form

1. Course Name:					
Enzymes					
2. Course Code:					
Ag.F.608					
3. Semester / Year:					
First semester (fall) / 2025 - 2026					
4. Description Preparation Date:					
1 / 2 / 2026					
5. Available Attendance Forms:					
Presence					
6. Number of Credit Hours (Total) / Number of Units (Total)					
2 theoretical hours + 3 practical hours (75 hours) / 3.5 units					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Tariq Nawaf Khalil					
8. Course Objectives					
Theoretical: The student learns about enzymes in terms of their structure, nomenclature, classification, and mechanism of action in biological reactions and the analysis of substrate.			practical : Introducing the student to the important real-life applications of enzymology Enabling the student to measure enzyme activity, measure kinetic constants, and apply inhibition mechanisms		
9. Teaching and Learning Strategies					
Theoretical - Interactive lecture - Brainstorming - Dialogue and discussion - Assigning reports -Conducting monthly and daily examinations			Practical Interactive lecture -Discussion, dialogue, brainstorming -Conducting laboratory experiments -Assigning reports -Conducting daily and monthly examinations		
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3Theoretical 2Practical	Theory: a1) The student learns the meaning and structure of enzymes. Practical: a1) The student learns about the fields of biotechnology and the environmental factors for production.	Theory: Understanding the term "enzymes" Practical: Enzyme production from microorganisms	Theoretical : audio methods, Writing on the board Direct dialogue style Practical Assigning tasks and reports	Shortexams, assignments, discussions
2	3Theoretical 2Practical	Theory: b 1) The student learns about enzyme production methods and the most important producing	Theory: Enzyme production by microorganisms and plants enzymes	Theoretical : audio methods, Writing on the board Direct dialogue	Shortexams, assignments, discussions

		microorganisms. Practical: c 1) The student experiments with different production techniques.	Practical: Enzyme production	style Practical Assigning tasks and reports	
3	3Theoretical 2Practical	Theory: b 1) The student learns about enzyme extraction methods and applies the purification schedule. Practical: c 1) The student experiments with different production techniques.	Theory: Extraction methods and purification schedule for proteins Practical: Enzyme extraction and protein precipitation	Theoretical audio methods, Writing on the board Direct dialogue style Practical Assigning tasks and reports	Shortexams, assignments, discussions
4	3Theoretical 2Practical	Theory: a 1) The student learns about the mechanisms of enzyme classification. Practical: c 1) The student experiments with different techniques for measuring the enzyme activity of a specific group of enzymes.	Theory: Nomenclature and classification of enzymes Practical: Estimation of enzyme activity	Theoretical audio methods, Writing on the board Direct dialogue style Practical Assigning tasks and reports	Shortexams, assignments, discussions
5	3Theoretical 2Practical	Theory: a1) The student learns the basics of enzyme nomenclature. b1) The student explains the comparison between traditional and numerical nomenclature methods. Practical: C1) The student experiments with some enzyme restriction methods.	Theoretical: Continued discussion of enzyme nomenclature and classification Practical: The use of bound and free enzymes in biological reactions	THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
6	3Theoretical 2Practical	Theory: a 1) The student learns about the mechanisms of inhibition and activation of enzyme reactions. Practical: c 1) The student experiments with different techniques to measure the enzyme activity of restricting	Theory: Enzyme activators and inhibitors Practical: Estimating the enzyme activity of restricting enzymes	Theoretical audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions

		enzymes.			
7	3Theoretical 2Practical	Theory: a 1) The student learns about the mechanisms of enzyme activation and how easily it binds to substrate. Practical: c 1) The student experiments with estimating the K_m and V_{max} of enzymes.	Theoretical: Mechanism of enzyme action in the breakdown of the substrate Practical: Estimation of enzyme kinetic constants	Theoretical audio methods, Writing on the board Direct dialogue style practical Assign tasks and reports	Shortexams, assignments, discussions
8	3Theoretical 2Practical	Scientific Visit Theoretical a1) The student learns about some production methods in which enzymes are a key and influential factor. Practical b1) The student learns about production methods and the results of enzymatic reactions	Scientific visit	THEORETICAL audio methods, Writing on the board Direct dialogue style Practical Assigning tasks and reports	Shortexams, assignments, discussions
9	3Theoretical 2Practical	Theory: e 1) The student understands the importance of the active site in facilitating the enzymatic reaction. Practical: c 1) The student experiments with different methods for calculating activation energy.	Theoretical: Description of the enzyme's active site and the mechanisms of enzyme binding to the substrate. Practical: Continued from previous lesson estimating kinetic constants, how to calculate activation energy.	Theoretical audio methods, Writing on the board Direct dialogue style Practical Assigning tasks and reports	Shortexams, assignments, discussions
10	3Theoretical 2Practical	Theory: a 1) The student learns about methods for identifying enzyme functional groups. Practical: c 1) The student experiments by adding some compounds that play a role in accelerating enzyme reactions.	Theoretical: Identifying some of the functional groups present at the enzyme's active site. Practical: Practical application of some methods for activating enzyme reactions.	Theoretical audio methods, Writing on the board Direct dialogue style Practical Assigning tasks and reports	Shortexams, assignments, discussions
11	3Theoretical 2Practical	Theory: a 1) The student identifies enzymes that can break down more than one	Theory: Multisubstrate-dependent enzyme reactions Practical:	Theoretical audio methods, Writing on the board Direct dialogue	Shortexams, assignments, discussions

		substrate simultaneously Practical: c 1) The student experiments with reversible and irreversible inhibition methods. e 1) The student understands the importance of inhibiting enzyme reactions in the function of living cells.	Practical application of some methods for inhibiting enzyme reactions	style Practical Assignments tasks and reports	
12	3Theoretical 2Practical	Theory: a 1) The student will identify the difference between single-chain and multi-chain peptide enzymes in enzymatic reactions. Practical: c 1) The student will experiment with some compounds that act as coenzymes and study the effect on enzymatic reactions. e 1) The student will understand the importance of these compounds in the rate of enzymatic reactions and the difference between a cofactor and a coenzyme	Theory: Mono- and polypeptide chain enzymes Practical: Studying the effect of certain coenzymes on reaction rate	Theoretical audio methods, Writing on the board Direct dialogue Style Practical Assignments tasks and reports	Shortexams, assignments, discussions
13	3Theoretical 2Practical	Theory: e 1) The student understands the importance of enzymes in speeding up biological reactions. Practical: c 1) The student experiments with several different enzymes and the mechanisms of action on the substrate.	Theoretical: The kinetic and chemical mechanisms of enzyme-assisted reactions. Practical: Studying the kinetics of enzyme-assisted reactions involving a single substrate	Theoretical audio methods, Writing on the board Direct dialogue style Practical : Assignments tasks and reports	Shortexams, assignments, discussions
14	3Theoretical 2Practical	Theory and Practice: d1) The student prepares report on the topic of enzymes.	Theoretical: Comprehensive review Practical: Comprehensive review analysis of the results obtained from experiments	THEORETICAL audio methods, Writing on the board Direct dialogue style practical assignments tasks and reports	Shortexams, assignments, discussions
15	3Theoretical 2 practical	Theoretical and Practical d1) The student discusses the findings of reports submitted by other students. d2) The student understands the importance	Theoretical and Practical Comprehensive Review Course Review	Practical Oral questions (competition) practical experience Short test questions	Discussions

		of enzymes in speeding biological reactions.			
11. Course Evaluation					
t	Evaluation methods	Evaluation date (one week)	Grade	Relative weight %	
1	Final theoretical report + theoretical practical reports	Theoretical 15 weeks Practical 1-15 weeks	7theoretical + 6 practical	13%	
2	Short test 1 Quiz	3 weeks	4theoretical + 2practical	6%	
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4	Short test 2 Quiz	12 weeks	4 theoretical + 2 practical	6%	
5	Final practical test	practical exams week	20	20%	
6	Final theoretical exam	theoretical exams week	40	40%	
			100	100	
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)			Understanding Enzymes, by Dr. Basil Kamel Dalali Enzymes in Food Processing		
Recommended books and references (scientific journals, reports...)			references (scientific journals, reports....)		
Electronic References, Websites			Electronic references, Internet sites, Research gate		

Theoretical subject teacher: Dr. Tariq Nawaf Khalil

Practical subject teacher : Dr. Tariq Nawaf Khalil

Chairman of the Scientific Committee : prof. Dr. Symaea Khalaf Badawi

Head of the Food Sciences Department : Assistant prof. Dr. Taha M. Taqi



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 الاستاذ المساعد الدكتور
 طه محمد تقي محمد

Course Description Form/Graduate studies/ Master

1. Course Name:

Food quality analysis

2. Course Code:

Ag.F. 609

3. Semester / Year:

First semester (Autumn)/Graduate studies/MSC/Food science/ 2025-2026

4. Description Preparation Date:

1/9/2025

5. Available Attendance Forms:

Attendance lesson

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

30 hours/30 units+ 45 hours/

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

Name: Assistant professor dr. Oday hasan ali al-jammaas

Email: dr.oday_aljammaas@uomosul.edu.iq

8. Course Objectives

- • Enabling the student to understand and comprehend the principles of quality and its importance.
- Enabling the student to know how to organize and arrange quality control in factories and critical points to monitor product safety.
- • Enabling the student to become familiar with the basics of the system and its programs and to analyze the risks and damages to which food products are exposed.
- Enabling the student to identify chemical pollution and its risks.
- The student can judge the efficiency of monitoring at different production points.
- Enabling the student to identify the authorities responsible for the safety and quality of food and dairy products within the scope of different countries of the world.

9. Teaching and Learning Strategies

Interactive lecture with the use of presentations – dialogue Discussion - brainstorming - assigning tasks and reporting.

Assigning group work and revealing students' skills - assignment
Assignments to write a report for
each experiment.

10. Course Structure

Week	Hours	Required Learning Outcomes	Name of Unit or subject	Learning method	Evaluation method
First	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in flowchart and the extent to which their results conform to the established standard specifications.	Theoretical: Introduction to the definition of quality, its principles and importance practical: Microbial evaluation of different locations of a food factory (soft drink factory)	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions
Second	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in flowchart and the extent to which their results conform to the established standard specifications.	Theoretical: Organizing and arranging quality control in factories and critical points to monitor product safety practical: Microbial evaluation of different locations of a food factory (cheese factory)	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions
Third	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in flowchart and the extent to which their results conform to the established standard specifications.	Theoretical: System basics, software, and risk analysis practical: Microbial evaluation of raw materials for a dairy product	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions
Fourth	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various	Theoretical: Chemical Pollution: What Are the Hazards and How Are They Determined? practical: Microbial evaluation of raw materials for a food product (soft drink)	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions

		food products is presented in flowchart and the extent to which their results conform to the established standard specifications.			
Fifth	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in flowchart and the extent to which their results conform to the established standard specifications.	Theoretical: Critical control points include monitoring at various production points practical: Chemical evaluation of the final product (tomato paste)	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions
Sixth	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in flowchart and the extent to which their results conform to the established standard specifications.	Theoretical: Monitoring and tracking of dairy products practical: Chemical evaluation of the final product (ice cream)	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions
Seventh	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in flowchart and the extent to which their results conform to the established standard specifications.	Theoretical: First exam practical: First exam	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions
eighth	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in a flowchart and the extent to which their results conform to the	Theoretical: Monitoring and tracking food products such as jams practical: Microbial evaluation of a dairy product	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions

		established standard specifications.			
Ninth	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in a flowchart and the extent to which their results conform to the established standard specifications.	Theoretical: Authorities responsible for the safety and quality of food products in Iraq and various countries around the world practical: Microbial evaluation of a food product	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions
Tenth	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in a flowchart and the extent to which their results conform to the established standard specifications.	Theoretical: Legislation for the quality control of dairy products practical: The extent to which the facilities of a food factory building comply with the design requirements in terms of construction and health safety	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions
Eleventh	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in a flowchart and the extent to which their results conform to the established standard specifications.	Theoretical: Legislation for the quality control of dairy products practical: Estimation of BOD and microbial load of wastewater from industrial processes	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions
Twelveth	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in a flowchart and the extent to which their results conform to the established standard specifications.	Theoretical: Standard specifications for various food products practical: Estimation of water hardness and calcium in water	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions
Thirteenth	2Theoretical 3Practical	Theoretical: a1:	Theoretical: Second exam	Theoretical: Auditory methods	Short exams, assignments,

		Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in a flowchart and the extent to which their results conform to the established standard specifications. Practical: b1: Represents the metals and all used in the manufacture of food laboratory equipment in the form of a flow chart.	practical: Second exam	Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	or discussions
Fourteenth	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in a flowchart and the extent to which their results conform to the established standard specifications.	Theoretical: Standard specifications for various dairy products Practical: Determination of magnesium in water	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions
Fifteenth	2Theoretical 3Practical	Theoretical: a1: Learn the most important principles and importance of food quality Practical: b1: The chemical, physical and microbial evaluation of various food products is presented in a flowchart and the extent to which their results conform to the established standard specifications.	Theoretical: Food Codex Practical: Determination of sulfate in water	Theoretical: Auditory methods Writing style on the blackboard Direct dialogue style practical : Assigning tasks and reporting	Short exams, assignments, or discussions

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc . The average is calculated from 25 for theory, as well as for practical, with an average of 15.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Quality Control Book / Written by Dr. Shin Samano Gerges
Main references (sources)	Quality control in fruit and vegetable

	processing 6 th 6 th edition year 2023
Recommended books and references (scientific journals, reports...)	Journal of food quality
Electronic References, Websites	IFT meeting food quality division https://www.ift.org/community/interest-groups-divisions/food-engineering-division

Instructor of theoretical part

Assistant Prof. Dr. Oday hasan ali al-jammaas

Instructor of practical part

Assistant Prof. Dr. Oday hasan ali al-jammaas

Chairman of scientific committee

Prof. Dr. Sumaya khalaf badawi

Head of the department of Food science

Assistant Prof. Dr. Taha Mohammed Taqi Mohammed




 الأستاذ المساعد الدكتور
 طه محمد تقي محمد

Course Description Form

1. Course Name:					
Dairy Production / Master's					
2. Course Code:					
Ag.F.612					
3. Semester / Year:					
First Autumn Semester / 2025–2026					
4. Description Preparation Date:					
1/9/2025					
5. Available Attendance Forms:					
Presence					
6. Number of Credit Hours (Total) / Number of Units (Total)					
2 theoretical hours + 3 practical hours (75 hours)/ 3. units					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Shaymaa Jawad Mahmood					
8. Course Objectives					
1. To enable the student to understand all aspects of dairy production. 2. To enable the student to become familiar with the latest manufacturing methods in the dairy field 3. To enable the student to understand the relationship between microorganisms and dairy prod. 4. To enable the student to know the steps involved in manufacturing dairy products. 5. To enable the student to prepare the necessary raw materials for any dairy product.					
9. Teaching and Learning Strategies					
1. Interactive lecture 2. Self-learning 3. Dialogue and discussion 4. Assigning reports and practical exercises 5. Conducting monthly and daily exams					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2Theoretical 3Practical	Theoretical: a1: The student will learn the concept of dairy product manufacturing. Practical: b1: The student will learn the steps involved in manufacturing any dairy product.	Theoretical: Physicochemical properties of milk and their importance in manufacturing Practical: Yogurt production	THEORETICAL audio methods, Writing on the board Direct dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
2	2Theoretical 3Practical	Theoretical: a1: The student will learn the	Theoretical: The effect of	THEORETICAL audio methods,	Shortexams, assignments,

		concept of dairy product manufacturing. Practical: b1: The student will learn the steps involved in manufacturing any dairy product.	heat treatments milk components. Practical: The effect of heat treatments on milk components.	Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	discussions
3	2Theoretical 3Practical	Theoretical: a1: The student will learn the concept of dairy product manufacturing. Practical: b1: The student will learn the steps involved in manufacturing any dairy product.	Theoretical: Homogenization in milk and its effect on its components Practical: Steamed and pasteurized milk	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
4	2Theoretical 3Practical	Theoretical: a1: The student will learn the concept of dairy product manufacturing. Practical: b1: The student will learn the steps involved in manufacturing any dairy product.	Theoretical: Milk thickening. Practical: Milk thickening.	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
5	2Theoretical 3Practical	Theoretical: a1: The student will learn the concept of dairy product manufacturing. Practical: b1: The student will learn the steps involved in manufacturing any dairy product.	Theoretical: Milk drying Practical: Milk drying	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
6	2Theoretical 3Practical	Theory: a2: The student identifies the factors that affect manufacturing processes. Practical: c1: The student examines different samples for the presence of microorganisms..	Theoretical: Cow's Milk Alternatives Dairy Production Practical: Plant-Based Milk	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
7	2Theoretical 3Practical	Theory: a2: The student identifies the factors that affect manufacturing processes. Practical: c1: The student examines different samples for presence of microorganisms.	Theoretical: Fermented Dairy Products Practical: Preparation of Starters	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
8	2Theoretical 3Practical	Theory: a2: The student identifies the factors that affect	Theoretical: Fermented Dairy Products	THEORETICAL audio methods, Writing on the	Shortexams, assignments, discussions

		manufacturing processes. Practical: c1: The student examines different samples for presence of microorganisms.	Practical: Scientific visit	Board Direct Dialogue style PRACTICAL Assigning tasks and reports	
9	2Theoretical 3Practical	Theory: a2: The student identifies the factors that affect manufacturing processes. Practical: c1: The student examines different samples for the presence of microorganisms.	Theoretical: Milk Whey Products Practical: Milk Whey Products	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
10	2Theoretical 3Practical	Theoretical: a1: The student learns about the concept of dairy product manufacturing. Practical: c1: The student examines different samples the presence microorganisms.	Theoretical: Milk Whey Products Practical: Milk Whey Products	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
11	2Theoretical 3Practical	Theory: a2: The student identifies the factors that affect manufacturing processes. Practical: c1: The student examines different samples for presence of microorganisms.	Theoretical: Cheese making. Practical: Cheese making.	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
12	2Theoretical 3Practical	Theoretical: a1: The student will learn the concept of dairy product manufacturing. Practical: b1: The student will learn steps involved manufacturing any dairy product.	Theoretical: Cheese making. Practical: Cheese making.	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
13	2Theoretical 3Practical	Theoretical: a1: The student will learn the concept of dairy product manufacturing. Practical: b1: The student will learn steps involved manufacturing any dairy product.	Theoretical: Cream production. Practical: Cream production.	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions
14	2Theoretical 3Practical	Theoretical: a1: The student learns about the concept of dairy product manufacturing. Practical: c1: The student	Theory: Ice Cream Production Practical: Ice Cream Production	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL	Shortexams, assignments, discussions

		examines different samples the presence microorganisms.		Assigning tasks and reports	
15	2Theoretical 3Practical	Theoretical: a1: The student will learn the concept of dairy product manufacturing. Practical: b1: The student will learn steps involved manufacturing any dairy product..	Theoretical Curriculum review Practical Reference and discussion	THEORETICAL audio methods, Writing on the Board Direct Dialogue style PRACTICAL Assigning tasks and reports	Shortexams, assignments, discussions

11. Course Evaluation

t	Evaluation methods	Evaluation date (one week)	Grade	Relative weight %
1	Final theoretical report + theoretical practical reports	Theoretical 15 weeks Practical 1-15 weeks	7theoretical + 6 practical	13%
2	Short test 1 Quiz	3 weeks	4theoretical + 2practical	6%
3	Midterm exam (theoretical and practical)	9 weeks	10theoretical + 5 practical	15%
4	Short test 2 Quiz	12 weeks	4 theoretical + 2 practical	6%
5	Final practical test	practical exams week	20	20%
6	Final theoretical exam	theoretical exams week	40	40%
			100	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Dairy microbiology, Robinson Principles of microbiology / Dr. Fayez Al-Ani And Dr. Amin Suleiman Badawi
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Internet sites for specialized topics Search Google

مدرس المادة

Dr.Shaymaa Jawad Mahmood

رئيس قسم علوم الأغذية

رئيس اللجنة العلمية



(Signature)
الاستاذ المساعد الدكتور
علي محمد تقي محمد