Course Description Form

1. Course Name:
Dairy Chemistry
2. Course Code:
DACH369
3. Semester / Year:
Second semester/third stage/2023-2024
4. Description Preparation Date:
2024/2/1
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. Saif Ali Mohammed and MSc Abdullah Anwar
8. Course Objectives

Theoretical	Practical
- • The learner should be able to define the concept of dairy chemistry • Choosing the appropriateness of the factors affecting the chemical reactions taking place in milk • Differentiate between different planning systems and the appropriate ones • Understand the basics of planning and use them to know the chemical components of milk • Distinguish between different types of milk	- - Discussion, dialogue and brainstorming - Conducting laboratory experiments -Set reports - Daily procedure and Monthly checks - Display models of milk - He is assigned to prepare a report entitled from his diligence and prepare it for discussion with the students

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 - Presentations of examples of food spoilage due to molds and yeasts - He is assigned to prepare a report entitled from his own diligence and prepare it for discussion with the students

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2Theoretical 3Practical	**THEORETICAL** A1: Learn about the composition of milk and its physical and chemical properties **PRACTICAL:** B6: Examines different samples of milk	**THEORETICAL** General introduction to milk and its chemical composition practical : Sampling methods	**THEORETICAL** audio methods, Writing on the board Direct dialogue style **PRACTICAL** Assigning tasks and reports	Shortexams, assignments, discussions
2	2Theoretical 3Practical	**THEORETICAL** A2: Learn about milk fat, milk fat characteristics, and milk fat composition **PRACTICAL** : B7: Discovers methods for extracting fat, lactose, and protein from milk	**THEORETICAL** Milk fat practical : Separating milk components and testing them	**THEORETICAL** audio methods, Writing on the board Direct dialogue style **PRACTICAL** Assigning tasks and reports	Shortexams, assignments, discussions
3	2Theoretical 3Practical	**THEORETICAL** A3: He is familiar with the natural, stable properties of milk fat **PRACTICAL** : B8: Measures milk specific gravity, viscosity and freezing point	**THEORETICAL** Chemical composition of milk fat practical : Natural properties of milk	**THEORETICAL** audio methods, Writing on the board Direct dialogue style **PRACTICAL** Assigning tasks and reports	Shortexams, assignments, discussions
4	2Theoretical 3Practical	**THEORETICAL** A4: Identify saponified substances **PRACTICAL** : B9: Discover the materials used to estimate the acidity of milk and the measurement method	**THEORETICAL** Saponified substances practical : Estimation of milk acidity	**THEORETICAL** audio methods, Writing on the board Direct dialogue style **PRACTICAL** Assigning tasks and reports	Shortexams, assignments, discussions
5	2Theoretical 3Practical	THEORETICAL A5: It identifies	**theoretical** Non-saponifiable	**THEORETICAL** audio methods,	Shortexams, assignments,

		non-soaped substances **practical :** B10: Tests the steps of the Keldahal method	materials practical : Milk proteins	Writing on the board Direct dialogue style **PRACTICAL** Assigning tasks and reports	discussions
6	2Theoretical 3Practical	THEORETICAL A2: Shows the types that cause spoilage of milk fat **practical :** B11: Try the best method to measure protein and non-protein nitrogen	**THEORETICAL** Deterioration practical : Distribution of nitrogen in milk using the Roland method	**THEORETICAL** audio methods, Writing on the board Direct dialogue style **PRACTICAL** Assigning tasks and reports	Shortexams, assignments, discussions
7	2Theoretical 3Practical	THEORETICAL B2: Familiarizes with the steps of auto-oxidation of milk fat practical : B12: Examines reductionist methods for lactose determination	**THEORETICAL** Autoxidation Of Milk Fat practical : Determination of lactose in milk	**THEORETICAL** audio methods, Writing on the board Direct dialogue style **PRACTICAL** Assigning tasks and reports	Shortexams, assignments, discussions
8	2Theoretical 3Practical	THEORETICAL B3: Judges the chemical structure of amino acids **PRACTICAL :** B13: Reveals how to estimate ash	**THEORETICAL** Proteins practical : Determination of total ash in milk	**THEORETICAL** audio methods, Writing on the board Direct dialogue style **PRACTICAL** Assigning tasks and reports	Shortexams, assignments, discussions
9	2Theoretical 3Practical	THEORETICAL B4: Master the types of theories that exist for the formation of the casein particle **PRACTICAL :** C4: Determines the best method for measuring calcium	**THEORETICAL** Properties of milk caseinates and their most important characteristics practical : Determination of calcium and magnesium using the calcein index	**THEORETICAL** audio methods, Writing on the board Direct dialogue style **PRACTICAL** Assigning tasks and reports	Shortexams, assignments, discussions
10	2Theoretical 3Practical	THEORETICAL B5: Judge the importance of milk	**THEORETICAL** Types of casein particle theories	**THEORETICAL** audio methods, Writing on the	Shortexams, assignments, discussions

		caseinates **PRACTICAL:** C5: Distinguish methods for estimating total solids	practical : Determination of total solids and ash determination	board Direct dialogue style **PRACTICAL** Assigning tasks and reports	
11	2Theoretical 3Practical	THEORETICAL C1: Explains the importance of beta casein **PRACTICAL:** C6: Distinguish the types of milk fat constants	**THEORETICAL** Composition of beta casein practical : Chemical properties of milk fat	**THEORETICAL** audio methods, Writing on the board Direct dialogue style **PRACTICAL** Assigning tasks and reports	Shortexams, assignments, discussions
12	2Theoretical 3Practical	THEORETICAL C2: Suggests an appropriate method to know the importance of whey proteins **PRACTICAL:** E2: Decides on the best way to measure phosphorus in milk	**THEORETICAL** Types of whey proteins and their characteristics practical : Determination of inorganic phosphorus in milk	**THEORETICAL** audio methods, Writing on the board Direct dialogue style **PRACTICAL** Assigning tasks and reports	Shortexams, assignments, discussions
13	2Theoretical 3Practical	THEORETICAL C3 explains the importance of lactose **PRACTICAL:** B14: Examines the steps of milk homogenization	**THEORETICAL** Chemical composition of lactose and its characteristics practical : Milk homogenization	**THEORETICAL** audio methods, Writing on the board Direct dialogue style **PRACTICAL** Assigning tasks and reports	Shortexams, assignments, discussions
14	2Theoretical 3Practical	THEORETICAL D1: Runs discussion panels related to milk salts and their importance **PRACTICAL :** C14: Distinguishes the types of milk adulteration	**THEORETICAL** Types of salts found in milk practical : Methods for detecting milk adulteration	**THEORETICAL** audio methods, Writing on the board Direct dialogue style **PRACTICAL** Assigning tasks and reports	Shortexams, assignments, discussions
15	2Theoretical 3Practical	THEORETICAL E1: Determine the effect of milk enzymes on the stability of milk	**THEORETICAL** The effect of enzymes in milk practical : Measuring the	**THEORETICAL** audio methods, Writing on the board	Shortexams, assignments, discussions

		towards storage **PRACTICAL:** C15: Distinguish the effect of different enzymes on the characteristics of milk	activity of lipase enzyme	Direct dialogue style **PRACTICAL** Assigning tasks and reports	

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)	Dairy chemistry
Main references (sources)	Dairy Chemistry and relying on t curriculum prepared by the subj teacher
Recommended books and references (scientific journals, reports…)	Many magazines, including Dairy Science, Dairy Research
Electronic References, Websites	Internet sites on specialized topics searchGoogle

Instructor of theoritical part

Dr. Saif Ali Mohammed

Instructor of practical part

Abdullah Anwar

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