Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

Course Guide for the Department of Food Sciences

MODULE DESCRIPTION FORM
Course Description Form

Module Information Course Information					
Module Title	**Engineering Drawing**			**Module Delivery**	
Module Type	**basic**			☐Theory ☐ Reading ☐ Lab ☐ Tutorial ☒Practical ☐ Seminar	
Module Code	USAGFS1103				
ECTS Credits	**4**				
SWL (hr/sem)	100				
Module Level			**Semester of Delivery**		**1**
Administering Department			**College**		
Module Leader	**Qais Abd El , Amir Mahdi**		**email**	**50007@uotechnology.edu.iq**	
Module Leader's Acad. Title	**Assistant Professor**		**Module Leader's Qualification**		**Doctor**
Module Tutor			**email**		
Peer Reviewer Name			**email**		
Scientific Committee Approval Date			**Version Number**		

Relation with other Modules Relationship with other subjects			
Prerequisite module	No	**Semester**	
Co-requisites module	No	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents Course objectives, learning outcomes and instructional contents	
Module Objectives **Course Objectives**	**1. Expand the mental ability to imagine geometric shapes.** **2. Adjust the practical aspects of the course through laboratory sessions.** **3. Introducing students to engineering designs and their importance in manufacturing products.** **4. Introduce students to the basics of engineering drawing.**

	5. To enable students to understand the elements of three-dimensional visualization. 6. Introduce students to technical graphics techniques so that design ideas can be communicated and produced. 7. Introduce students to visual and written standard requirements related to industry. 8. To understand and interpret any form of engineering drawings. .9 .To draw an object from different perspective perspectives
Module Learning Outcomes **Learning outcomes of the course**	1. Ability to read and analyze design maps. 2. The ability to represent engineering designs and transfer them into reality. 3. Students should be able to understand the description of any design. 4. Learn and learn about common drawing symbols. 5. Learn about the development of basic engineering models. 6. Students will be able to produce working drawings according to industry requirements. 7. Students will be able to draw the required scenes for assembly drawings that illustrate all the details. .8 Students will be able to apply the principles of technical drawing to many engineering applications.
Indicative Contents **Indicative Contents**	**Guidance content includes:** **Part A –** **Introduction to Graphic Styles** **Fonts, font, paper types and tools** **Part B –** **Drawing techniques** **Identification of drawing papers, drawing by hand, drawing with tools** **Part C –** **Engineering operation and drawing applications** **Part D –** **Projection techniques and spell projection applications**

Learning and Teaching Strategies Learning and Teaching Strategies	
Strategies	1. Speed and accuracy of decision-making. 2. Provide a detailed explanation in the chapter on the topic. 3. Provide a sufficient illustration on the board with the help of a projector.

	4. **Make lecture periods interactive and integrate them with practical work.** 5. **Educational websites.** 6. **Give students classroom work during the lecture period** 7. **Giving homework at the end of each lecture.**

Student Workload (SWL)

The student's academic load is calculated for 15 weeks

Structured SWL (h/sem) Regular academic load of the student during the semester	**45**	Structured SWL (h/w) Regular student load per week	**3**
Unstructured SWL (h/sem) Irregular academic load of the student during the semester	**55**	Unstructured SWL (h/w) Irregular student academic load per week	**3.7**
Total SWL (h/sem) The student's total academic load during the semester	**100**		

Module Evaluation

Course Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**				
	Assignments				
	Projects / Lab.				
	Report				
Summative assessment	**Midterm Exam**				
	Final Exam				
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus)

Theoretical Weekly Curriculum

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	

Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	
Week 16	
Week 17	
Week 18	
Week 19	
Week 20	
Week 21	
Week 22	
Week 23	
Week 24	
Week 25	
Week 26	
Week 27	
Week 28	

Delivery Plan (Weekly Lab. Syllabus) Weekly Curriculum of the Laboratory	
	Material Covered
Week 1	**Introduction to engineering drawing and tools to be provided**
Week 2	**Types of lines, geometric shapes and their features**
Week 3	**Initialize the artboard, how to start with engineering drawing**
Week 4	**Engineering Operations -1**
Week 5	**Engineering Operations -2**
Week 6	**Engineering Operations -3**
Week 7	**Comprehensive exercises for engineering operations**
Week 8	**Projection theory**
Week 9	**Projections**
Week 10	**Projections**
Week 11	**Dimensions**
Week 12	**Additional exercises**
Week 13	**Cut Projections -1**
Week 14	**Cut Projections -2**
Week 15	**Holographic drawing**

Learning and Teaching Resources

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	The engineering drawing of the author (Abdul Rasoul Al-Khafaf)	Yes
Recommended Texts		No
Websites		

Grading Scheme

Grading chart

Group	Grade	Appreciation	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	medium	60 - 69	Fair but with major shortcomings
	E - Sufficient	Acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – File	Deposit (in (processing	(45-49)	More work required but credit awarded
	F – Fail	Failure	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM
Course Description Form

Module Information

Course Information

Module Title	**English Language**	**Module Delivery**
Module Type	**Basic**	☒ **Theory** ☒ **Reading** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	**UoB12345**	
ECTS Credits	**2**	
SWL (hr/sem)	**50**	

Module Level		**Semester of Delivery**	1

Administering Department	Department of Food Science	**College**	Faculty of Agriculture
Module Leader	**Abdullah Hashim Ibrahim**	**email**	abdullah.h@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Professor	**Module Leader's Qualification**	M.A .
Module Tutor	Name (if available)	**email**	Email
Peer Reviewer Name	Name	**email**	Email
Scientific Committee Approval Date	20/10/2024	**Version Number**	2

Relation with other Modules

Relationship with other subjects

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Course objectives, learning outcomes and instructional contents

Module Objectives Course Objectives	The general goals that the English language in the College of Agriculture seeks to achieve through its programs are as follows: A- Teaching students the English language and all its skills. B- Preparing a competent physical education teacher who is proficient in using a secondary language. T- Preparing a student capable of understanding the English language and its skills. D- Developing students' level and making them aware of the importance of language in the initial and advanced stages C- Investing in the English language theoretically and practically to raise the educational level.
Module Learning Outcomes Learning outcomes of the course	Mastering the four English language skills: listening, reading, speaking, and writing. 2-Describing literary phenomena in different eras. 3-Knowledge of the basic rules of the English language.
Indicative Contents Indicative Contents	Mastering the four English language skills: listening, reading, speaking, and writing. Tenses in general Training Question - Introduction Present tenses - introduction Past tenses - introduction

Learning and Teaching Strategies

Learning and Teaching Strategies

Strategies	1 . Active learning. 2. Cooperative learning 3. Brainstorming. 4. Free and guided discussions 5. Task analysis

Student Workload (SWL)

The student's academic load is calculated for 15 weeks

Structured SWL (h/sem) Regular academic load of the student during the semester	30	**Structured SWL (h/w)** Regular student load per week	2
Unstructured SWL (h/sem) Irregular academic load of the student during the semester	20	**Unstructured SWL (h/w)** Irregular student academic load per week	1.3
Total SWL (h/sem) The student's total academic load during the semester	50		

Module Evaluation

Course Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	1	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

Theoretical Weekly Curriculum

	Material Covered
Week 1	Tenses in general

Week 2	Training Question - Introduction
Week 3	Present tenses - introduction
Week 4	Past tenses - introduction
Week 5	Time and date Quantities
Week 6	Written exam
Week 7	Future tense
Week 8	Comparison and superlative
Week 9	Directions
Week 10	The present perfect
Week 11	Circumstances
Week 12	Short answers
Week 13	Written exam
Week 14	Additional rules
Week 15	**Review everything that came in the semester**
Week 16	
	Review of Inductor and Capacitor as Circuit Elements, Source-free RL and RC Circuits, Transient Response
	Mid-term Exam + Unit-Step Forcing, Forced Response, the RLC Circuit
	Sinusoidal Forcing, Complex Forcing, Phasors, and Complex Impedance, Sinusoidal Steady State Response
	Nodal and Mesh Revisited, Average Power, RMS, Introduction to Polyphase Circuits

Delivery Plan (Weekly Lab. Syllabus)

Weekly Curriculum of the Laboratory

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources

Learning and Teaching Resources

	Text	**Available in the Library?**
Required Texts	Evaluation of Headway (Plus) Course book of EFL Undergraduate Iraqi Students	Yes

Recommended Texts	New Headway Beginners	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

Grading Scheme Grading chart				
Group	**Grade**	Appreciation	**Marks %**	**Definition**
Success Group (50 - 100)	**A** - Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	medium	60 - 69	Fair but with major shortcomings
	E - Sufficient	Acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – File	Deposit (in (processing	(45-49)	More work required but credit awarded
	F – Fail	Failure	(0-44)	Considerable amount of work required

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MODULE DESCRIPTION FORM
Course Description Form

Module Information Course Information					
Module Title	**General Chemistry**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☒ **Reading** ☐Lab ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	USAGFS1105				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		1	**Semester of Delivery**		
Administering Department			**College**		
Module Leader	Name:Mohammed Hameed Mahal		**email**	mhmaa84@gmail.com	
Module Leader's Acad. Title		Assistant Professor Doctor	**Module Leader's Qualification**		Ph.D.
Module Tutor			**email**		

Peer Reviewer Name		**email**	
Scientific Committee Approval Date		**Version Number**	

Relation with other Modules Relationship with other subjects			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents Course objectives, learning outcomes and instructional contents	
Module Objectives **Course Objectives**	The main goal of studying chemistry is: 1. Apply conceptual knowledge in practical work. 2. Ability to learn how to explain chemical and physical phenomena through empirical evidence. 3. Scientific reasoning and testing hypotheses empirically so that the data are analyzed and interpreted accurately. 4. To carry out safe laboratory practices. 5. To broaden and deepen their understanding of theories and concepts to enhance their scientific skills. .6 The main goal of studying chemistry is to become a researcher capable of identifying oneself
Module Learning Outcomes **Learning outcomes of the course**	1. Recognize, understand and explain the basic and theoretical principles of the main areas of chemistry: analytical, organic, inorganic and physical. 2. Demonstrate knowledge, understand basic facts, concepts, principles and theories, conduct experiments and find appropriate industrial applications related to all areas of chemistry. 3. Explain the nature and behavior of chemical compounds, their classification, chemical structure, reactivity, mechanisms, physical properties, and characterization using different techniques. 4. Perform accurate and accurate measurements to measure the properties of materials and interpret the results in a scientific way. 5. Acquire problem-solving skills in different fields of chemistry and the ability to work in different environments using different sources and resources. 6. Relate and appreciate the essential role of chemistry in economics, industry and everyday life. .7 Using laboratory equipment, applying standard procedures, and7- acquiring the necessary skills to deal with hazardous and toxic chemicals safely.
Indicative Contents **Indicative Contents**	1. Discussion of scientific theories

	2. The ability to interpret hypotheses that have clarified the atomic structure. 3. It is forbidden to enter the laboratory except by those authorized to do so only or accompanied by the laboratory supervisor. 4. Adhere to the content of all warning and guidance signs and follow what is in them. 5. Clarify the contents of containers or cans of chemicals by placing clear identification labels on them explaining their risks. 6. Subjecting chemicals that emit odors or fumes harmful to health to careful examination by control devices and disposing of fumes. 7. Refrain from disposing of organic solutions that do not mix with water through the sewage. 8. Collect organic solutions that do not mix with water, subject them to control and get rid of vapors. 9. Creating guidelines for the initial safety of each chemical and making it accessible to everyone without exception. 10. Do not mix chlorinated organic solutions with other organic solutions that do not mix with water, and subject each of them separately to evaporation in the controller and disposal of vapors. 11. Take off bracelets, watches, rings and the like when handling chemicals. 12. Do not use any flammable chemicals. 13. Prepare a written plan that includes the procedures that laboratory personnel - whether students or faculty members - must follow in the event of an accidental or sudden accident in the laboratory and ensure that everyone is fully aware of the emergency plan prepared in advance in this regard. 14. Wash the skin frequently immediately upon contact with any chemical. 15. Do not eat or drink in the lab or apply cosmetics. 16. Return all chemicals in the designated storage areas at the end of work each day. 17. Audit the inspection of the chemical warehouse periodically while maintaining a record of these checks. 18. Collect rust-causing chemicals and store them in large containers. 19. Reduce the supply of hazardous chemicals within the laboratory to a minimum and dispose of any old unused materials to replace them with modern materials. 20. Keeping toxic chemicals in closed places is only opened by authorized persons. 21. Isolate explosive materials from other chemicals and keep them in an enclosed space. 22. Keeping flammable liquids in containers whose specifications conform to safety requirements and rules so that the containers have a lid with locks. 23. Be very careful when sorting out chemicals that cause a violent reaction when mixed together.

	24. Immediate disposal of cans that do not have a label indicating their content by the end of working time daily. 25. Turn on the suction fan (puller) to get rid of fumes. 26. Connect the electrical heating devices to a control device to disconnect the power supply from the device in the event of a significant overheating of the device. 27. Examine the efficiency of the work of the laboratory equipment periodically and keep records of the devices that have been examined in order to know the percentage of their validity . 28. Use both hands when handling large bottles and do not lift them up. 29. Return all materials, glassware and equipment to their designated places after use.

Learning and Teaching Strategies

Learning and Teaching Strategies

Strategies	Active learning in chemistry is an educational method based on the active participation of students in the learning process, so that the student is the focus of the educational process and the main participant in it, and this is through the use of various methods and activities that help him build knowledge, and acquire skills related to educational content in a practical and interactive way away from memorization and reception.

Student Workload (SWL)

The student's academic load is calculated for 15 weeks

Structured SWL (h/sem) Regular academic load of the student during the semester	60	**Structured SWL (h/w)** Regular student load per week	4
Unstructured SWL (h/sem) Irregular academic load of the student during the semester	90	**Unstructured SWL (h/w)** Irregular student academic load per week	6
Total SWL (h/sem) The student's total academic load during the semester	150		

Module Evaluation

Course Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
	Quizzes	2	10%(10)		

Formative assessment	**Assignments**	2	10%(10)		
	Projects / Lab.	1	5 %(5)		
	Report	1	5%(5)		
Summative assessment	**Midterm Exam**	2hr	20%(20)		
	Final Exam	2hr	50%(50)		
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus) Theoretical Weekly Curriculum	
	Material Covered
Week 1	Introduction to Chemistry
Week 2	Periodic table of elements
Week 3	Types of chemical bonds and chemical reactions
Week 4	Material
Week 5	Modern theories in the construction of matter
Week 6	Corn
Week 7	Molecular weight and formula weight
Week 8	Determining the formula of a compound
Week 9	Chemical bonding
Week 10	Chemical equations
Week 11	Oxidation preparation
Week 12	Lotions
Week 13	Acids and bases
Week 14	Chemical equilibrium
Week 15	Ionic equilibrium
Week 16	preparatory week befor the Final Exam Preparatory week before the final exam

Delivery Plan (Weekly Lab. Syllabus) Weekly Curriculum of the Laboratory	
	Material Covered
Week 1	Introduction to General Chemistry and Solutions

Week 2	Laboratory Safety
Week 3	Devices and tools used in analysis
Week 4	Practical procedures for descriptive analysis
Week 5	Analysis of positive ions
Week 6	Analysis of the first group of positive ions
Week 7	Group II analysis of positive ions
Week 8	Group III analysis of positive ions
Week 9	Group IV analysis of positive ions
Week 10	Group V analysis of positive ions
Week 11	Density
Week 12	Determination of liquid density
Week 13	Determination of the density of a solid of irregular shape
Week 14	Separation and purification of organic matter methods
Week 15	Practical exam

Learning and Teaching Resources

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	General ChemistryGeneral Chemistry	
Recommended Texts	Principles of General Chemistry Doctor Mohieddin Baccouche Dr. Nouri Besibsu	No
Websites	General Chemistry Textbook Amazone.com	

Grading Scheme

Grading chart

Group	Grade	Appreciation	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	medium	60 - 69	Fair but with major shortcomings
	E - Sufficient	Acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – File	Deposit (in (processing	(45-49)	More work required but credit awarded
	F – Fail	Failure	(0-44)	Considerable amount of work required

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MODULE DESCRIPTION FORM
Course Description Form

Module Information
Course Information

Module Title	**Principles of Animal Production**	**Module Delivery**	
Module Type	Core	☒ **Theory** ☒ **Reading** ☐Lab ☐ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	USAGFS1104		
ECTS Credits	5		
SWL (hr/sem)	125		

Module Level	1	**Semester of Delivery**	1
Administering Department	Food Science	**College**	Agriculture
Module Leader	Mohammed Ali Abdullah	**email**	mohammed.ali.a@uosamarra.edu
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor		**email**	
Peer Reviewer Name	Nibras Majed Abbas	**email**	nibras.m.a@uosamarra.edu.iq
Scientific Committee Approval Date		**Version Number**	

Relation with other Modules
Relationship with other subjects

Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
Course objectives, learning outcomes and instructional contents

Module Objectives **Course Objectives**	1- Studying the reality of livestock in Iraq and the Arab world. 2- The most important obstacles facing the animal production sector and how to overcome those obstacles.

	3- Identifying the most important breeds of international and local cows producing milk and meat and their most important production and formal specifications. 4- Identify the most important breeds of sheep famous in the world with knowledge of the economic importance of sheep. 5- The most important breeds of local sheep. 6- International and local goat breeds and their most important production specifications. 7- The importance of poultry and how to benefit from it with the identification of meat and egg production breeds.
Module Learning Outcomes **Learning outcomes of the course**	1- Through which the student learns about the importance of livestock and its products. 2- The student's knowledge of successful livestock projects in the Arab region. 3- Identify the most important breeds producing milk and the biological importance of milk cattle. 4-How to identify buffalo breeding. 5- Introducing the student to the importance of fish farming and the most important types of farmed fish in Iraq. 6- How to keep farm records for animal production projects. 7- Identify health care for farm animals.
Indicative Contents **Indicative Contents**	Use the lecture. Use of exams. Use legends. Use brainstorming.

Learning and Teaching Strategies

Learning and Teaching Strategies

Strategies	

Student Workload (SWL)

The student's academic load is calculated for 15 weeks

Structured SWL (h/sem) Regular academic load of the student during the semester	75	**Structured SWL (h/w)** Regular student load per week	5
Unstructured SWL (h/sem) Irregular academic load of the student during the semester	50	**Unstructured SWL (h/w)** Irregular student academic load per week	3.3
Total SWL (h/sem) The student's total academic load during the semester	125		

Module Evaluation

Course Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	5	%10(10)	2,5,7,9,11	
	Assignments	1	%10(10)		
	Projects / Lab.	1	%10(10)		
	Report	1	%10 (10)	13	
Summative assessment	Midterm Exam	hours 2			
	Final Exam	3 hours			
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus)

Theoretical Weekly Curriculum

	Material Covered
Week 1	Introduction, the concept of animal production, the reality of animal production in Iraq
Week 2	The most important obstacles facing the animal production sector, how to preserve livestock
Week 3	Breeds of cows (breeds of milk cattle)
Week 4	Meat cattle breeds
Week 5	Buffalo breeding
Week 6	Challenges facing the meat sector
Week 7	Global and domestic sheep breeds
Week 8	Some biological qualities of sheep
Week 9	Goat breeds
Week 10	The importance of poultry and the most important breeds of poultry
Week 11	Fish farming and its importance
Week 12	Some farmed fish in Iraq and the Arab world
Week 13	Livestock Projects Management
Week 14	Healthcare for farm animals
Week 15	Farm Records
Week 16	
Week 17	
Week 18	
Week 19	
Week 20	
Week 21	
Week 22	
Week 23	
Week 24	
Week 25	
Week 26	
Week 27	
Week 28	

Delivery Plan (Weekly Lab. Syllabus) Weekly Curriculum of the Laboratory	
	Material Covered
Week 1	**Field Operations**
Week 2	**Hatching and management of hatchery**
Week 3	**Records and Animal Field Management**
Week 4	**Animal housing and housing**
Week 5	**Calf care and care methods**
Week 6	**Nutrition and methods of presentation to farm animals**
Week 7	**Buffalo breeding methods**
Week 8	**Large animal dwellings and ways to create them**
Week 9	**Egg and meat chicken housing and methods of their design**
Week 10	**Methods of constructing housing for fattening calves**
Week 11	**Methods of breeding horses and camels**
Week 12	**Fish farming**
Week 13	**Methods of establishing fish farms and types of fish farms**
Week 14	**Agricultural Animal Health**
Week 15	**Healthcare for farm animals**

Learning and Teaching Resources Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	**Fundamentals of Animal Production** **Dr. Zuhair Al-Jalili, Dr. Muhammad Adel, Dr. Far Al-Shahwani** **Talal Yousef** Production of milk cattle, Dr. Natiq Hamid Al-Qudsi Basics of sheep and goat production and breedir Dr. Jalal Elijah Rev. Dr. Zuhair Al-Jalili. Dr. Daeb Ishaq Aziz	available
Recommended Texts		No
Websites	Wikipedia. Kenana website. Iraqi academic journals websiteGFRD	

Grading Scheme Grading chart				
Group	**Grade**	Appreciation	**Marks %**	**Definition**

Success Group (50 - 100)	**A** - Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
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MODULE DESCRIPTION FORM
Course Description Form

Module Information
Course Information

Module Title	**Math**	**Module Delivery**	
Module Type	**Basic**	☒ **Theory** ☒ **Reading** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**USAGFS1101**		
ECTS Credits	**4**		
SWL (hr/sem)	**100**		
Module Level	1	**Semester of Delivery**	1
Administering Department	Food Science	**College**	Faculty of Agriculture
Module Leader	Prof. Khalid Abdullah Sahar	**email**	khalid.a.s@uosamarra.edu.iq
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**email**	Email
Peer Reviewer Name	Name	**email**	Email
Scientific Committee Approval Date		**Version Number**	

Relation with other Modules

Relationship with other subjects			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents Course objectives, learning outcomes and instructional contents	
Module Objectives **Course Objectives**	Helping the student to learn mathematical skills and solve mathematical problems Encourage students to work collaboratively to solve mathematical problems they may face Motivating students and encouraging them to develop their mathematical skills Applying mathematical concepts on the ground to prepare students to enter the labor market
Module Learning Outcomes **Learning outcomes of the course**	Making the student able to recognize matrices - the concept of matrices Make the student able to recognize the determinants – calculate the determinant of the matrix - properties of 3x3 and the 2x2 matrix Make the student able to deal with periods - types of periods - functions - determine the corresponding and graph of the field and the field of some functions. Making the student able to recognize integration – the concept of integration –
Indicative Contents **Indicative Contents**	,Introducing the student to the general foundations of mathematics, including matrices functions, derivatives, etc. and their applications in the agricultural field

Learning and Teaching Strategies Learning and Teaching Strategies	
Strategies	,Make the learner able to solve the problems of matrices, derivatives, exponential, linear trigonometric, logarithmic and integration calculations in agricultural applications

Student Workload (SWL) The student's academic load is calculated for 15 weeks			
Structured SWL (h/sem) Regular academic load of the student during the semester	45	**Structured SWL (h/w)** Regular student load per week	3
Unstructured SWL (h/sem) Irregular academic load of the student during the semester	55	**Unstructured SWL (h/w)** Irregular student academic load per week	3.7
Total SWL (h/sem) The student's total academic load during the semester	**100**		

Module Evaluation

Course Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

Theoretical Weekly Curriculum

	Material Covered
Week 1	Matrices - The concept of matrices - Some types of matrices - Operations on matrices
Week 2	2x2Determinants – Calculates the determinant of a matrix – Properties of determinants3x3.and the matrix
Week 3	Cramer's method for finding the solution of the system of linear equations
Week 4	Intervals - types of periods - functions - identification of the domain, the corresponding domain and the graph of some functions.
Week 5	Function graph offset – applications to a linear function.
Week 6	Differentiation – Concept of Differentiation – Derivative Laws of Functions
Week 7	Integration - the concept of integration - general formulas of integration
Week 8	Applications of Integration- Calculating the Area Under the Curve- Calculating the Area between Two Curves
Week 9	Trigonometric functions- Derivation of trigonometric functions.
Week 10	Integral calculation of trigonometric functions- applications of trigonometric functions.
Week 11	Logarithmic function- Properties of logarithmic function- Differentiation of logarithmic function-

Week 12	Calculates the integral of a logarithmic function. Applications of the logarithmic function
Week 13	Exponential Function – Properties of Exponential Function – Derivative of Exponential Function – Integration of Exponential Function
Week 14	Inverse trigonometric functions – The concept of inverse functions Derivation of inverse functions-
Week 15	Calculates the integral of inverse functions.
Week 16	

Delivery Plan (Weekly Lab. Syllabus)

Weekly Curriculum of the Laboratory

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources

Learning and Teaching Resources

	Text	**Available in the Library?**
Required Texts	Calculus by Thomas	No
Recommended Texts	Introduction to Mathematical Statistics by Robert V. Hogg, Joseph W. McKean, and Allen T	No
Websites		

Grading Scheme

Grading chart

Group	**Grade**	Appreciation	**Marks %**	**Definition**
Success Group (50 - 100)	**A** - Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	medium	60 - 69	Fair but with major shortcomings
	E - Sufficient	Acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – File	Deposit (in (processing	(45-49)	More work required but credit awarded

	F – Fail	Failure	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM
Course Description Form

Module Information
Course Information

Module Title	**Principles of Microbiology**	**Module Delivery**	
Module Type	Basic	☒ **Theory** ☒ **Reading** ☐Lab ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	USAGFS1106		
ECTS Credits	**6**		
SWL (hr/sem)	**150**		

Module Level	1	**Semester of Delivery**	1
Administering Department	**Food Science**	**College**	Agriculture
Module Leader	**Dr. Shatha Ahmed Mahdi**	**email**	Shath.8181@uosamarra.edu.iq
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor		**email**	
Peer Reviewer Name	**Bilal Saad Mutlaq**	**email**	
Scientific Committee Approval Date	20/10/2024	**Version Number**	2

Relation with other Modules
Relationship with other subjects

Prerequisite module	**No**	**Semester**	
Co-requisites module	**No**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents Course objectives, learning outcomes and instructional contents	
Module Objectives **Course Objectives**	**Providing comprehensive scientific guidance for students and conducting new tests for microbiology and immunity as it relates to human diseases by raising the student's level of .knowledge of microbiology** •
Module Learning Outcomes **Learning outcomes of the course**	8. **Definition of microbiology and its stages of development** 9. **Morphological properties of microbiology** 10. **The essential parts of bacteria** 11. **Instructions for working in microbiology laboratories for microbiology**
Indicative Contents **Indicative Contents**	Morphological properties of microbiology Introducing students toThe essential parts of bacteria

Learning and Teaching Strategies Learning and Teaching Strategies	
Strategies	**Providing comprehensive scientific guidance for students and conducting new tests for microbiology and immunity as it relates to human diseases by raising the student's level of knowledge of .microbiology**

Student Workload (SWL) The student's academic load is calculated for 15 weeks			
Structured SWL (h/sem) Regular academic load of the student during the semester	75	**Structured SWL (h/w)** Regular student load per week	5
Unstructured SWL (h/sem) Irregular academic load of the student during the semester	75	**Unstructured SWL (h/w)** Irregular student academic load per week	5
Total SWL (h/sem) The student's total academic load during the semester	**150**		

Module Evaluation

Course Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10%(10)		
	Assignments	2	10%(10)		
	Projects / Lab.	1	10%(10)		
	Report	1	10%(10)		
Summative assessment	Midterm Exam	2hr	10%(10)		
	Final Exam	2hr	50%(50)		
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus)

Theoretical Weekly Curriculum

	Material Covered
Week 1	Definition of microbiology and its stages of development
Week 2	Morphological properties of microbiology
Week 3	The essential parts of bacteria
Week 4	Non-essential parts of bacteria
Week 5	Supplement to previous materials
Week 6	Physical factors affecting growth
Week 7	Chemical factors affecting growth
Week 8	Growth curves and calculations
Week 9	Mold and yeasts / morphological and functional aspects
Week 10	Methods of reproduction of molds and yeasts and their use
Week 11	Virus
Week 12	Feeding microorganisms
Week 13	Pathological microbiology
Week 14	The relationship of microorganisms to food
Week 15	Genetics of microbiology
Week 16	
Week 17	
Week 18	
Week 19	
Week 20	
Week 21	
Week 22	

Week 23	
Week 24	
Week 25	
Week 26	
Week 27	
Week 28	

Delivery Plan (Weekly Lab. Syllabus)

Weekly Curriculum of the Laboratory

	Material Covered
Week 1	**Instructions for working in microbiology laboratories for microbiology**
Week 2	**Agricultural media**
Week 3	**Sterilization methods**
Week 4	**Simple pigmentation**
Week 5	**Knee dyeing/cram**
Week 6	**Painting blackboards**
Week 7	**Negative pigment**
Week 8	**Study of the movement of bacteria**
Week 9	**Study of molds and yeasts**
Week 10	**Direct bacterial counting**
Week 11	**SPC Standard Dish Counting**
Week 12	**Microbiology Water Examination**
Week 13	**Study the effect of physical factors on bacteria**
Week 14	**Diagnostic tests for bacteria**
Week 15	**Allergy test**

Learning and Teaching Resources

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	**Principles of Microbiology**	
Recommended Texts	**Microbiology**	No
Websites	**Explanatory videos on YouTube**	

Grading Scheme

Grading chart

Group	Grade	Appreciation	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	medium	60 - 69	Fair but with major shortcomings

	E - Sufficient	Acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – File	Deposit (in (processing	(45-49)	More work required but credit awarded
	F – Fail	Failure	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM
Course Description Form

Module Information
Course Information

Module Title	Computer	**Module Delivery**	
Module Type	**Basic**	☒ **Theory** ☒ **Reading** ☐Lab ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOS-1101		
ECTS Credits	**3**		
SWL (hr/sem)	**75**		
Module Level		**Semester of Delivery**	
Administering Department		**College**	Type College Code
Module Leader	Abdul Munem Hasan Ahmed	**email**	moneim.h14@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant professor	**Module Leader's Qualification**	Ph.D
Module Tutor		**email**	Email
Peer Reviewer Name	Name	**email**	Email
Scientific Committee Approval Date		**Version Number**	

Relation with other Modules
Relationship with other subjects

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents Course objectives, learning outcomes and instructional contents	
Module Objectives **Course Objectives**	**The main objective of computer study is:** 1- Identify the concepts of computers , programs and their components. 2- Identify the computer parts, and the input and output units in the computer. 3- Identify memory types, core CPU components, and computer ports. 4- Identify the GUI: operating system; basics of common operating systems. 5- Learn about the word processing program: basics of word processing; opening and closing documents: (text creation and processing; text formatting; table handling: spell checking). 6. Learn about the presentation program: the basics of presentation software ; create presentations; prepare and present slides: slide show. 7- Learning about the Internet and web browsers: the basics of computer networks; LAN and WAN networks; the concept of the Internet and its applications, Internet connectivity . 8- Identify communications and e-mail: (basics of e-mail; obtaining an e-mail account; sending and receiving e-mails). Computertroubleshooting: Identify and solve common hardware and software -9 .problems faced by computer users
Module Learning Outcomes **Learning outcomes of the course**	1- Understanding the basics of computers: the student's ability to identify computer components and basic operating systems. 2- Proficiency in the use of office software such as (PowerPoint, Excel, word) Microsoft Office 3- Ability to collect, organize and analyze data using computer tools. 4- Use online communication and collaboration tools effectively. 5- Ability to self-learn and acquire new skills in the field of information technology. .Follow up on recent developments in computer technology -6
Indicative Contents **Indicative Contents**	Guidance content includes: 1- Understand theconcepts of computers , programs and their components. .Understand the Internet, web browsers and the basics of computer networks -2

Learning and Teaching Strategies Learning and Teaching Strategies	
Strategies	1- Active learning in computer is an educational method based on the active participation of students in the education process so that the student is the focus of the educational process.

	2- Self-learning in the computer subject: It is the provision of various educational resources such as e-lessons and books to motivate students to explore the content themselves. 3- Developing academic education in accordance with quality standards in higher education, which enable colleges and universities to produce outputs that are able to produce and excel in the labor market . 4 - Teaching the student practical applications and developing thinking skills to solve emerging problems.

Student Workload (SWL)

The student's academic load is calculated for 15 weeks

Structured SWL (h/sem) Regular academic load of the student during the semester	45	**Structured SWL (h/w)** Regular student load per week	3
Unstructured SWL (h/sem) Irregular academic load of the student during the semester	30	**Unstructured SWL (h/w)** Irregular student academic load per week	2
Total SWL (h/sem) The student's total academic load during the semester	75		

Module Evaluation

Course Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	5%		
	Assignments	1	5%		
	Projects / Lab.				
	Report	1	10 %		
Summative assessment	**Midterm Exam**	2 hours	30%		
	Final Exam	3 hours	50% (50)		
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus)

Theoretical Weekly Curriculum	
	Material Covered
Week 1	Introduction to Computer
Week 2	Computer parts (input units, output units, types of memory)
Week 3	CPU, PC ports, PC(features and types)
Week 4	Operating system (GUI: operating system, basics of common operating systems; user interface, use of mouse .(techniques: use of common icons
Week 5	Use mouse techniques: use of common icons, status bar, use menu and menu selection, concept of folders and .directories, opening and closing various windows: creating shortcuts
Week 6	;Word processing: the basics of word processing; opening and closing documents: creating and processing text
Week 7	a Word document.Format text; Work with table: check spelling, language and synonyms setting; print
Week 8	,Spreadsheet: spreadsheet basics, working with cells, formulas and functions
Week 9	.Edit spreadsheet, print spreadsheet
Week 10	;Presentation software: basics of presentation software; creating presentations
Week 11	Preparing and presenting slides: Slide show, take hard copies of presentations/prints
Week 12	and WAN LAN ;Introduction to the Internet and Web Browsers: Fundamentals of Computer Networks Networks; Internet Concept and Applications; Internet Connectivity, World Wide Web; Web browsers. Search .address IP :Domain Name :URL Engines: Understand
Week 13	Communications and email: email basics; getting an email account; sending and receiving emails; accessing sent .emails; using emails; collaborating on documents
Week 14	Computer troubleshooting: Identify and resolve common hardware and software problems faced by computer .users. Basic troubleshooting techniques and tools for diagnosing and resolving problems
Week 15	End of course exam

Delivery Plan (Weekly Lab. Syllabus) Weekly Curriculum of the Laboratory	
	Material Covered
Week 1	Display of computer parts (input units, output units, types of memory)
Week 2	View memory types
Week 3	View CPU, PC ports
Week 4	Training on the use of the GUI for the operating system
Week 5	Mouse Training
Week 6	.Training on the use of the menu, menu selection , the concept of folders, opening and closing different windows
Week 7	:Training in the use of word processing software: the basics of word processing; opening and closing documents .creating and manipulating text
Week 8	. Word document. Table training: spell checking, language and synonyms setting; printing a
Week 9	.Spreadsheet training: spreadsheet basics, cell handling, formulas and functions
Week 10	.Training in editing the spreadsheet, printing the spreadsheet
Week 11	;Presentation software training: the basics of presentation software; creating presentations
Week 12	.Slide preparation and presentation training : slide presentation, taking hard copies of presentations/prints

Week 13	Training in the use of web browsers: basics of computer networks; Internet concept and applications, Internet .connectivity, World Wide Web; Web browsers. Search engines
Week 14	.Communication and email training: the basics of email; getting an email account; sending and receiving emails
Week 15	Computer troubleshooting training: Identify and resolve common hardware and software problems faced by .computer users

Learning and Teaching Resources

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Methodological book: Computer Basics and Office Applications Assoc. Prof. Ziad Mohamed Abboud Prof. Ghassan Hamid Abdul majeed Assoc. Prof. Amir Hassan Murad	
Recommended Texts	Fundamentals of Computer Systems: A Comprehensive Guide to Computer Systems and Applications by Roseline Paul (Author)	No
Websites	https://icdlarabia.org/Ar/modules-computer-essentials	

Grading Scheme

Grading chart

Group	Grade	Appreciation	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	medium	60 - 69	Fair but with major shortcomings
	E - Sufficient	Acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – File	Deposit (in (processing	(45-49)	More work required but credit awarded
	F – Fail	Failure	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM

Course Description Form

Module Information Course Information					
Module Title	**Statistics**		**Module Delivery**		
Module Type	Core		☒ **Theory** ☒ **Reading** ☐Lab ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**		
Module Code	USAGFS12011				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	**1**		**Semester of Delivery**	**2**	
Administering Department	**Food Science**		**College**	**Agriculture**	
Module Leader	**Prof. Khaled Abdullah Sahar**		**email**	khalid.a.s@uosamarra.edu.iq	
Module Leader's Acad. Title	**Professor doctor**		**Module Leader's Qualification**	**Prof**	
Module Tutor			**email**		
Peer Reviewer Name	**Nibras Majed Abbas**		**email**	nibras.m.a@uosamarra.edu.iq	
Scientific Committee Approval Date	**2025/2/23**		**Version Number**	**3**	

Relation with other Modules Relationship with other subjects			
Prerequisite module	There isn't any	**Semester**	
Co-requisites module	There isn't any	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents Course objectives, learning outcomes and instructional contents	
Module Objectives **Course Objectives**	Knowledge objectives that enable students to obtain knowledge of access to statistics and knowledge of statistical laws and their use in their research

	Maharati objectives of the course and students' acquisition of knowledge and understanding in the use of statistical methods and the ability to apply statistical methods
Module Learning Outcomes **Learning outcomes of the course**	Brainstorming Quick and short tests Oral questions during lectures and practice sessions Mid-term written exams Reports and researches that are the main means of measuring student ability
Indicative Contents **Indicative Contents**	Know the importance of statistics Knowledge of writing, transferring and tabulating statistical data Learn about statistical metrics and how to use them

Learning and Teaching Strategies

Learning and Teaching Strategies

Strategies	Make the student have the ability to use statistical symbols and statistical equations in transferring data for the experiment and ways to convert them into numbers to facilitate their sustainability and know the results of agricultural experiments

Student Workload (SWL)

The student's academic load is calculated for 15 weeks

Structured SWL (h/sem) Regular academic load of the student during the semester	75	**Structured SWL (h/w)** Regular student load per week	5
Unstructured SWL (h/sem) Irregular academic load of the student during the semester	50	**Unstructured SWL (h/w)** Irregular student academic load per week	3.3
Total SWL (h/sem) The student's total academic load during the semester	**125**		

Module Evaluation

Course Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	%10 (10)	3	1-3
	Assignments	1	%10 (10)	7	4-6
	Projects / Lab.				
	Report	1	%10 (10)	10	1-12
	Midterm Exam	2	%20(20)	13	all

Summative assessment	**Final Exam**	3	%50(50)	16	all
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus)

Theoretical Weekly Curriculum

	Material Covered
Week 1	A brief history of statistics
Week 2	Definition of Statistics
Week 3	Statistical division
Week 4	Principles of combinations and permutations
Week 5	Statistical symbols
Week 6	View and summarize data
Week 7	Dispersion Scales
Week 8	Frequency distribution tables
Week 9	Measures of central tendency
Week 10	Hypothesis test statistical errors
Week 11	Hypothesis Test
Week 12	Statistical errors
Week 13	f distribution -of hypothesis test
Week 14	zTest -
Week 15	T Distribution
Week 16	
Week 17	
Week 18	
Week 19	
Week 20	
Week 21	
Week 22	
Week 23	
Week 24	
Week 25	
Week 26	
Week 27	
Week 28	

Delivery Plan (Weekly Lab. Syllabus)

Weekly Curriculum of the Laboratory

	Material Covered
Week 1	Definitions of statistical terms
Week 2	Examples of statistical codes
Week 3	Practical examples of graphic display types
Week 4	Examples of frequency distribution tables

Week 5	Examples of concentration measures
Week 6	Examples of dispersion measures
Week 7	Examples of permutations and combinations
Week 8	Examples of probability distributions and binomial distribution
Week 9	Examples of normal distribution and calculation of areas under the natural curve
Week 10	Examples of hypothesis testing
Week 11	Examples of a test
Week 12	In testing statistical hypotheses, examples of test uses
Week 13	Examples of test applications
Week 14	Examples of Chi-Square Test Uses in Hypothesis Testing
Week 15	Examples of simple linear correlation and simple linear regression

Learning and Teaching Resources

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	The book of the narrator humbled	
Recommended Texts	Scientific journals Reports and research related to statistics	No
Websites	All sites related to statistics	

Grading Scheme

Grading chart

Group	Grade	Appreciation	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	medium	60 - 69	Fair but with major shortcomings
	E - Sufficient	Acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – File	Deposit (in (processing	(45-49)	More work required but credit awarded
	F – Fail	Failure	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM
Course Description Form

Module Information
Course Information

Module Title	**Dairy Principles**	**Module Delivery**	
Module Type	**Main** Core		☒ Theory
Module Code	USAGFS1209		☒ Reading
ECTS Credits	**7**		☐Lab
SWL (hr/sem)	**175**		☐ Tutorial
			☐ Practical
			☐ Seminar

Module Level	1	**Semester of Delivery**	2
Administering Department	**Food Science**	**College**	Agriculture
Module Leader	**Dr. Shatha Ahmed Mahdi**	**email**	Shath.8181@uosamarra.edu.iq
Module Leader's Acad. Title	**Lecturer Doctor**	**Module Leader's Qualification**	**Lecturer Doctor**
Module Tutor		**email**	
Peer Reviewer Name	**Abeer Majeed Shaker**	**email**	
Scientific Committee Approval Date	23/2/2025	**Version Number**	3

Relation with other Modules
Relationship with other subjects

Prerequisite module	**No**	**Semester**	
Co-requisites module	**No**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
Course objectives, learning outcomes and instructional contents

Module Objectives **Course Objectives**	**Introducing the student to the chemical composition of milk, the factors affecting its composition, methods of preserving milk and its products, and .preparing and processing milk in the farm and laboratory**

Module Learning Outcomes **Learning outcomes of the course**	**To distinguish the components and properties of natural milk** **Know the factors affecting the quality of milk and milk products.** **Mastering production processes .** **Dairy analysis quality and food safety** **Learn about food safety standards and laws for the dairy industry**
Indicative Contents **Indicative Contents**	,Introducing the student to the chemical composition of milk, the factors affecting its composition methods of preserving milk and its products, and preparing and processing milk in the farm and laboratory.

Learning and Teaching Strategies

Learning and Teaching Strategies

Strategies	**Providing comprehensive scientific guidance for students and conducting new tests for microbiology and immunity as it relates to human diseases by raising the student's level of knowledge of .microbiology**

Student Workload (SWL)

The student's academic load is calculated for 15 weeks

Structured SWL (h/sem) Regular academic load of the student during the semester	90	**Structured SWL (h/w)** Regular student load per week	6
Unstructured SWL (h/sem) Irregular academic load of the student during the semester	85	**Unstructured SWL (h/w)** Irregular student academic load per week	5.7
Total SWL (h/sem) The student's total academic load during the semester	**175**		

Module Evaluation

Course Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	10%(10)	6	5-1
	Assignments				
	Projects / Lab.	1	10%(10)	15	ALL

	Report	1	10%(10)	15	ALL
Summative assessment	**Midterm Exam**	2hr	(20)%20	7	ALL
	Final Exam	3hr	50%(50)	16	ALL
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus) Theoretical Weekly Curriculum	
	Material Covered
Week 1	The importance of milk as food for humans
Week 2	The importance of studying the composition of milk
Week 3	The economic importance of milk
Week 4	Some physical qualities of milk
Week 5	Chemical composition of milk fat
Week 6	Organic matter in milk
Week 7	Midterm Exam
Week 8	The importance of water in milk
Week 9	Natural properties of milk fat
Week 10	Milk proteins
Week 11	Whey proteins
Week 12	Mineral salts in milk
Week 13	Microbiology in milk
Week 14	Diseases transmitted through milk
Week 15	Using Pearson Square to Modify Fat Percentage in Milk
Week 16	
Week 17	
Week 18	
Week 19	
Week 20	
Week 21	
Week 22	
Week 23	
Week 24	
Week 25	
Week 26	
Week 27	
Week 28	

Delivery Plan (Weekly Lab. Syllabus) Weekly Curriculum of the Laboratory	
	Material Covered
Week 1	Sampling method

Week 2	Types of samples
Week 3	Sensory examinations and milk judging
Week 4	Estimation of milk fat percentage
Week 5	Kerber method
Week 6	Babcock method
Week 7	Semester Exam
Week 8	Milk adulteration and methods of detecting it
Week 9	Bacteriological tests of milk
Week 10	Determination of milk acidity
Week 11	Detection of milk taken from cattle infected with mastitis
Week 12	Milk Stability Tests
Week 13	Manufacture of milk fermenters
Week 14	Cheese making
Week 15	Butter industry

Learning and Teaching Resources

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	1_ The book of general dairy principles written by Dr. Mohsen Al-Shabibi, Dr. Nizar Shukri, Dr. Sadiq Jawad Tohme and Dr. Helan Hammadi Ali 1999 Technology of the manufacture of dairy products _2 cheese, cream, yogurt written by Muhammad Najati Al-) Ghazali	No
Recommended Texts	**Books specialized in the field of dairy science and dairy products** **General Dairy Principles – Jamal Al-Din Abdel-Tawab**	No
Websites	**Explanatory videos on YouTube**	

Grading Scheme

Grading chart

Group	Grade	Appreciation	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	medium	60 - 69	Fair but with major shortcomings
	E - Sufficient	Acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – File	Deposit (in (processing	(45-49)	More work required but credit awarded
	F – Fail	Failure	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM
Course Description Form

Module Information
Course Information

Module Title	**Principles of Food Industries**	**Module Delivery**
Module Type	Core **Master**	☒ **Theory** ☒ **Reading** ☐Lab ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	USAGFS12010	
ECTS Credits	7	
SWL (hr/sem)	175	

Module Level	1	**Semester of Delivery**	2
Administering Department	Department of Food Science	**College**	Faculty of Agriculture
Module Leader	Baraa Abdul salam Abdul hamid	**email**	baraa.a@usamarra.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	Master
Module Tutor		**email**	
Peer Reviewer Name	Widyan Alwan Khalaf	**email**	Widyan.a@uosamarra.edu.iq
Scientific Committee Approval Date	2025/2/23	**Version Number**	3

Relation with other Modules
Relationship with other subjects

Prerequisite module	No	**Semester**	

Co-requisites module	No	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents Course objectives, learning outcomes and instructional contents	
Module Objectives **Course Objectives**	1. To identify the basics in the food industry and a general idea of the basic principles of food preservation. 2. Learn about the composition of food in general 3. Identify preservation methods and innovative ways to extend the shelf life of food and reduce the difference between demand and supply of the product in the markets. 4. Learn about the types of industries that can be provided in Iraq within the local product and its investment 5. Raising awareness of job opportunities in the field of food processing and investment .6 Work to improve the country's economy by producing a variety of food items, investing surplus crops and reducing imports.
Module Learning Outcomes **Learning outcomes of the course**	1. The student becomes aware of the quality of food and its impact on health 2. Be able to process food and produce new types of industries that will improve the health and economy of the country alike 3. The student learns about the ways in which he can deal with crops during planting, harvesting and storage to maintain the product with the best quality and the least crop losses 4. Be able to use advanced devices and tools in different industries in food with the best quality and the least possible losses 5. They should be canning and packaging and its impact on food and marketing at the same time .6 Be able to perform laboratory, chemical and quality control tests of food
Indicative Contents Indicative Contents	1.

Learning and Teaching Strategies Learning and Teaching Strategies	
Strategies	1. Effective active education between the student and the teacher and the adoption of brainstorming by asking questions and providing information

	2. Participation of the student in analyzing the results and conclusions to have a deeper understanding of the scientific material 3. Doing various activities such as making some food themselves such as pastries, colors, etc. 4. Assign them research or homework to research and discuss a specific product or manufacturing method 5. Visit some factories or laboratories that allow students to enter so that the application is practical and benefit from the experience of workers .6 Assigning them to various tasks that enhance their information, such as conducting a process of drying food or canning and following up on the quality of the product

Student Workload (SWL)

The student's academic load is calculated for 15 weeks

Structured SWL (h/sem) Regular academic load of the student during the semester	90	**Structured SWL (h/w)** Regular student load per week	6
Unstructured SWL (h/sem) Irregular academic load of the student during the semester	85	**Unstructured SWL (h/w)** Irregular student academic load per week	5.7
Total SWL (h/sem) The student's total academic load during the semester	**175**		

Module Evaluation

Course Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	10 % (10)	2-3-4-6-8-9-10-11	2-5
	Assignments				
	Projects / Lab.	1	10 % (10)	2-4-6-8-10	ALL
	Report	1	10 % (10)	4-5-9-11-13	1-4
Summative assessment	**Midterm Exam**	2	20 % (20)	3-5-6-9-11-13	ALL
	Final Exam	3	50 % (50)		ALL
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus) Theoretical Weekly Curriculum	
	Material Covered
Week 1	**An introduction to the science of food processing and how it arose**
Week 2	**Food Ingredients**
Week 3	**Water - proteins - carbohydrates**
Week 4	**Fats - vitamins - minerals and fiber**
Week 5	**Food preservation methods (food and the best way to preserve it)**
Week 6	**Cryopreservation and freezing**
Week 7	**Canning preservation**
Week 8	**Preservation by drying (natural - industrial)**
Week 9	**Preservation by salting and pickling**
Week 10	**Sugar preservation and jam manufacturing**
Week 11	**Identify the types of industries in Iraq**
Week 12	**Causes of food spoilage and spoilage**
Week 13	**Food processing and its impact on nutritional value and food quality**
Week 14	**Prepared foods and their pros and cons**
Week 15	**Final Exam**
Week 16	
Week 17	
Week 18	
Week 19	
Week 20	
Week 21	
Week 22	
Week 23	
Week 24	
Week 25	
Week 26	
Week 27	
Week 28	

Delivery Plan (Weekly Lab. Syllabus) Weekly Curriculum of the Laboratory	
	Material Covered
Week 1	**Learn about the basics of food processing, devices and tools used in the laboratory**
Week 2	**The method of preserving food by refrigeration and freezing, its scientific bases and the type of food that is preserved in this way**
Week 3	**Food preservation by drying and measuring the moisture content of food**
Week 4	**Extraction of fat from food**
Week 5	**Determination of protein percentage**
Week 6	**Fruit juice industry**

Week 7	**Manufacture of jams**
Week 8	**Bakery industry**
Week 9	**Jelly & Marmillard Manufacturing**
Week 10	**Manufacture of ketchup and tomato paste**
Week 11	**Food packaging materials**
Week 12	**Pigments and pigments**
Week 13	**Preservatives and their uses**
Week 14	**Methods of preparation and concentration of solutions**
Week 15	**Final Exam**

Learning and Teaching Resources

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Food Industry Principles Book Dr. Majed Bashir Al-Aswad	
Recommended Texts	Food Chemistry Book Dr. Kamel Basil Dalali	No
Websites	:Food and Agriculture Organization of the United Nations (FAO) https://www.fao.org/home/ar Google scholar	

Grading Scheme

Grading chart

Group	Grade	Appreciation	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	medium	60 - 69	Fair but with major shortcomings
	E - Sufficient	Acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – File	Deposit (in (processing	(45-49)	More work required but credit awarded
	F – Fail	Failure	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM
Course Description Form

Module Information Course Information			
Module Title	**Arabic Language**	**Module Delivery**	
Module Type	Basic	☒ **Theory** ☒ **Reading** ☐Lab ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOS-12012**		
ECTS Credits	**2**		
SWL (hr/sem)	**50**		
Module Level	First	**Semester of Delivery**	2
Administering Department		**College**	Agriculture
Module Leader	Enaam Jassim Mohammed	**email**	j@uosamarra.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	Master
Module Tutor		**email**	
Peer Reviewer Name		**email**	
Scientific Committee Approval Date	2025/2 /23	**Version Number**	3

Relation with other Modules Relationship with other subjects			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents Course objectives, learning outcomes and instructional contents

Module Objectives **Course Objectives**	**This course description provides a brief summary of the importance of the Arabic language by preserving the Arab identity and culture in light of globalization and showing the beauty of the Arabic language and the breadth of its meanings, construction and rhetorical methods and the beauty of its images, which are first manifested in the Holy Quran and literature, which enables reading the Holy Quran correctly free of errors, and understanding its true meaning, in addition to that the course is based on knowledge The basics of spelling, and to make a mistake learns from his mistakes, by drawing the word in a correct way** and the objectives of the course are: 7. **Enable students to understand the eloquence of the Holy Quran and stand on the aesthetics of the language in it** 8. **Training students to use punctuation marks between sentences correctly.** 9. **To expand students' literary horizon of ideas, meanings and moral values.** **Teaching students the correctness of writing according to the** .10 **- .basics of spelling, which enables them to draw words correctly**
Module Learning Outcomes **Learning outcomes of the course**	**A- Cognitive objectives** **A1- Knowledge of the basics of spelling of the Arabic language.** **A2- Identifying world literature and their influence on Arabic literature .** **A3- Studying some Qur'anic verses to be meandering to the linguistic and rhetorical habitats in them.** **B - Skill objectives of the course.** **B1 – Writing properly .** **B2 – The ability to extract common errors in daily use.** **B3- The ability to identify the areas of Qur'anic rhetoric as well as to .know its impact on understanding meanings**
Indicative Contents **Indicative Contents**	**1- Good reading** **2- Proper writing** **3- Active listening** **4- Speaking and delivering** **5- Text analysis** **Language culture -6**

Learning and Teaching Strategies Learning and Teaching Strategies	
Strategies	- The use of educational discussion (educational dialogue) that depends on the exchange of ideas to reach the facts

	The use of modern computer technologies-

Student Workload (SWL)			
The student's academic load is calculated for 15 weeks			
Structured SWL (h/sem) Regular academic load of the student during the semester	30	**Structured SWL (h/w)** Regular student load per week	2
Unstructured SWL (h/sem) Irregular academic load of the student during the semester	20	**Unstructured SWL (h/w)** Irregular student academic load per week	1.3
Total SWL (h/sem) The student's total academic load during the semester	**50**		

Module Evaluation

Course Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10%	7 and 15	1,2,3
	Assignments	1	10%	2and 3,4and 4 and 6 and 8 and 9 and 10 and 12 and 14 and15	Everyone
	Projects / Lab.				
	Report	1	10%	7 and 11	5,8,9
Summative assessment	**Midterm Exam**	2	20%		all
	Final Exam	3	50%		all
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus)

Theoretical Weekly Curriculum

	Material Covered
Week 1	The Arabic language among the languages of the world
Week 2	The emergence of spoken and written language and the beginning of codification
Week 3	Grammar system Basic introduction to grammar -

Week 4	Quranic rhetoric Surat Ad-Duha-
Week 5	Writing system Punctuation-
Week 6	Writing system - Link and cut - Medium Hamza Hamza at the end of the word -
Week 7	First month exam
Week 8	Quranic rhetoric – Surat Al-Kahf
Week 9	Writing system - Taa tethered and distraction Elongated and compartment -
Week 10	Number in Arabic
Week 11	Arabic & Computer
Week 12	Common mistakes in the Arabic language -Official correspondence Daily use of language-
Week 13	-Arabic and Arabization Basic introduction to Arabization -
Week 14	-World literature and Orientalism Shaeran model-
Week 15	Second month exam
Week 16	
Week 17	
Week 18	
Week 19	
Week 20	
Week 21	
Week 22	
Week 23	
Week 24	
Week 25	
Week 26	
Week 27	
Week 28	

Delivery Plan (Weekly Lab. Syllabus) Weekly Curriculum of the Laboratory	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	

Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	

Learning and Teaching Resources

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts		
Recommended Texts	**The Book by Sibawayh, The Secrets of Rhetoric by Al-Jurjani, Spelling and Punctuation in Arabic .Writing by Abdel Alim Ibrahim**	No
Websites		

Grading Scheme

Grading chart

Group	Grade	Appreciation	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	medium	60 - 69	Fair but with major shortcomings
	E - Sufficient	Acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – File	Deposit (in (processing	(45-49)	More work required but credit awarded
	F – Fail	Failure	(0-44)	Considerable amount of work required

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MODULE DESCRIPTION FORM

Course Description Form

Module Information Course Information					
Module Title	**Freedoms and human rights**			Unit delivery	
Module Type	**B**			☒ **Theory** ☒ **Reading** ☐Lab ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOS-2013				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	First		**Semester of Delivery**	2	
Administering Department	Food Science		**College**	Agriculture	
Module Leader	Abdul Munem Hasan Ahmed		**email**	moneim.h14@uosamarra.edu.iq	
Module Leader's Acad. Title	**Assistant Prof.**		**Module Leader's Qualification**	Ph.D.	
Module Tutor			**email**		
Peer Reviewer Name			**email**		
Scientific Committee Approval Date	**23 \2 \2025**		**Version Number**	**3**	

Relation with other Modules Relationship with other subjects			
Prerequisites Unit	No one	**Half Year**	
Common Requirements Unit	No one	Half Year	

Module Aims, Learning Outcomes and Indicative Contents Course objectives, learning outcomes and instructional contents	
Module Objectives **Course Objectives**	1. Introducing the student to democracy and its advantages 2. Know the historical development of democracy and its advantages 3. The relationship between the public rights and freedoms of individuals

	4. Learning about the democratic system in Iraq (pros and cons) 5. Knowledge of corruption, its causes and ways to address it Learn about some political terms .6
Module Learning Outcomes **Learning outcomes of the course**	1. Full knowledge of democracy 2. Know the general conditions for the success of a democratic system 3. What are the components and pillars of democracy? 4. The Roots of Democracy in Iraq 5. Pros and cons of the democratic system Accuracy and knowledge of some political terms .6
Indicative Contents **Indicative Contents**	Includes heuristic content Introducing and training students on democracy and freedom and how to express their opinions in a transparent and systematic manner so that their opinions are positive and the possibility of interaction with them by the concerned authority or authorities and the possibility of supporting these opinions by the government and public opinion, as whenever the expression of opinions in a civilized manner, the impact of its impact in all political circles and at various levels, so the main goal of this article is to create a conscious generation capable of leading the country democratically and believes in the opinion and the other opinion

Learning and Teaching Strategies **Learning and Teaching Strategies**	
Strategies	Creating a conscious generation that knows well its money and what it has to contribute ,to building a civilized state because of its sense of absolute belonging to this state whatever the circumstances and conditions it is going through, preserving public property as if it were private, in addition to raising the spirit of good citizenship, in addition .to enhancing cooperation among citizens themselves

Student Workload (SWL) The student's academic load is calculated for 15 weeks			
Structured SWL (h/sem) Regular academic load of the student during the semester	33	**Structured SWL (h/w)** Regular student load per week	2
Unstructured SWL (h/sem) Irregular academic load of the student during the semester	17	**Unstructured SWL (h/w)** Irregular student academic load per week	1
Total SWL (h/sem) The student's total academic load during the semester	50		

Module Evaluation

Course Evaluation

		Time/Number	Weight / Tags	Due week	Related Education pwdgm
Formative assessment	Quizzes	1	10% (5)	4, 10	LO 1.7
	Assignments				
	Projects / Lab.				
	Report	1	10% (10)	13	LO 1,3, 7
Summative assessment	Midterm Exam	2	(30) %30	7	LO 2.5
	Final Exam	3	(50) %50	16	LO 1-7
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

Theoretical Weekly Curriculum

	Material Covered
Week 1	Definition of democracy, concept of democracy, characteristics of democracy
Week 2	The historical development of democracy and freedom
Week 3	The relationship between the rights and freedoms of individuals and democracy The difference between freedom
Week 4	Evaluation of the democratic system and its stages of application in Iraq
Week 5	Types of democracy
Week 6	General conditions for the success of a democratic system
Week 7	Components and pillars of democracy
Week 8	The concept of elections and their legal adaptation
Week 9	Democracy in Iraq
Week 10	Pros of the democratic system, the cons of the democratic system
Week 11	Stages of the democratic system in Iraq The most important articles of the Iraqi Constitution 2005
Week 12	Administrative corruption is understood and defined by types of corruption
Week 13	Causes of corruption and corruption treatments
Week 14	Some political terms (constitution, federal court, presidential and parliamentary system....)
Week 15	Terms (secularism, aristocracy, liberalism, bureaucracy' imperialism)
Week 16	Review to prepare for the final exam

Learning and Teaching Resources

Learning and Teaching Resources		
	Text	Available in the library
Required Texts	**Human rights, democracy and public freedoms** **Assoc. Prof. Maher Sabri Kazem**	Yes
Recommended Texts	**The history of the emergence of human rights concepts 2006** **Raed Suleiman Alfaqir**	No
Websites		

Grading Scheme Grading chart				
Group	**Grade**	Appreciation	**Marks %**	**Definition**
Success Group (50 - 100)	**A** - Excellent	privilege	90 - 100	Outstanding Performance
	B - Very Good	Very good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	medium	60 - 69	Fair but with major shortcomings
	E - Sufficient	Acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – File	Deposit (in (processing	(45-49)	More work required but credit awarded
	F – Fail	Failure	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM
Course Description Form

Module Information **Course Information**		
Module Title	**Analytical Chemistry**	**Module Delivery**
Module Type	**Basic**	**☒ Theory** **☒ Reading** **X☐Lab** **X☐ Tutorial** **X☐ Practical** **☐ Seminar**

Module Code			
ECTS Credits	**7**		
SWL (hr/sem)	**175**		
Module Level	1	**Semester of Delivery**	
Administering Department	**Food Science**	**College**	**Agriculture**
Module Leader	**Muhammad Hamid Mahal**	**email**	**mhmaa84@gmail.com**
Module Leader's Acad. Title	**.Assistant Professor Dr**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor		**email**	
Peer Reviewer Name	**Bilal Saad Mutlaq**	**email**	
Scientific Committee Approval Date	**2025/2/23**	**Version Number**	**3**

Relation with other Modules **Relationship with other subjects**		
Prerequisite module	**Semester**	
Co-requisites module	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents **Course objectives, learning outcomes and instructional contents**	
Module Objectives **Course Objectives**	The objectives of studying analytical chemistry include: 1. Understand the basic principles of analytical chemistry • Study the types of chemical analysis (quantitative and qualitative). dentify methods of separation, identification, and measurement of chemical compounds. 2. Develop analytical and interpreting skills • Learn how to use modern devices and techniques in chemical analysis. • Interpret analytical data and draw conclusions accurately. 3. Improve accuracy and quality in analysis • Learn how to reduce experimental errors and improve the accuracy of measurements. • Understand the methods of validation of results and quality control in chemical analyzes. 4. Applications of analytical chemistry in different fields • Use in the fields of medicine and pharmacy (drug analysis). • Application in industry (analysis of the quality of raw materials and products). s role in environmental monitoring (analysis of pollutants in water and air). 5. Developing scientific research skills and critical thinking • Develop the ability to solve chemical problems using analytical methods. • Enhance research and investigation skills in chemical analysis.

	6. Identify modern analytical techniques and devices • Such as spectroscopy, chromatographic and electrochemical analysis. • Identify the applications of these technologies in scientific research and industry. ese objectives make the study of analytical chemistry necessary for the understanding and .analysis of substances in various scientific and industrial fields
Module Learning Outcomes **Learning outcomes of the course**	The learning outcomes of analytical chemistry include: 1. Knowledge and understanding Understand the basic principles of analytical chemistry, including quantitative and qualitative analysis. • Identify the chemical reactions used in the analysis. Knowledge of chemical separation methods and the most important modern analytical techniques. 2. Practical and technical skills • Ability to prepare standard solutions and perform various calibrations. • Use analytical devices such as chromatography, spectroscopy, and electrochemical analysis. • Apply sample analysis methods accurately in the laboratory. 3. Analysis and problem solving bility to interpret analytical results and evaluate their accuracy and reliability. • Analysis of errors in chemical measurements and minimization. hoose the appropriate analytical method according to the nature of the sample and the purpose of the analysis. 4. Applications of analytical chemistry in different fields Understand the applications of analytical chemistry in pharmacy, medicine, industry, environment, and scientific research. • Analyze the quality of chemical materials and products to ensure their conformity with specifications.)etection of pollutants and harmful substances in the environment, water and food. 5. Research skills and self-learning • Develop scientific research skills in the field of analytical chemistry. • Ability to work together and prepare scientific reports. • Improve communication skills to present data and analysis in a clear and accurate manner. 6. Commitment to laboratory work ethics • Apply safety standards in dealing with chemicals and analytical devices. ollow the ethics of scientific research and quality control in chemical analysis. ıese outputs ensure that the student is able to understand and apply analytical chemistry in .various scientific and practical fields
Indicative Contents **Indicative Contents**	e instructional contents of Analytical Chemistry include a range of topics that help students understand the fundamentals and practical applications of analytical chemistry. They can be divided into the following sections: 1. Introduction to Analytical Chemistry • Definition and importance of analytical chemistry. Types of chemical analysis (qualitative, quantitative, conventional, and automatic). pplications of analytical chemistry in different fields (industry, medicine, environment, food). 2. Chemical analysis methods A. Qualitative Analysis • Detection of ions and elements in chemical compounds. • Chemical reactions used to identify compounds.

	B. Quantitative Analysis • Weighing methods (gravimetric analysis): the use of precipitation to measure the concentration of substances. • Titration methods (volumetric analysis): • Acid-base titration. • Redox titrations. • Sedimentation titrations. • Complexity calibrations. 3. Analytical techniques and devices • Spectroscopic Analysis: • Visible and ultraviolet (UV-Vis) absorption. • Atomic absorption (AAS). • Infrared (IR) analysis. • Chromatographic Analysis: • Gas chromatography (GC). • High Performance Liquid Chromatography (HPLC). • Electrochemical Analysis: • Measurement of electrical conductivity. • pH meter. • Voltmeter and amperometric analysis. 4. Chemical separation methods • Sedimentation and crystallization. • Solvent extraction. • Ion exchange. 5. Quality control and evaluation of accuracy of measurements Sources of errors in chemical analysis (systematic and random errors). • Ways to reduce errors and increase the accuracy of results. • Validation of analytical results (accuracy, reliability, repeatability). 6. Applications of analytical chemistry in practical life • Analysis of drugs and pharmaceuticals. • Analysis of food, water and environmental pollutants. • Industrial applications (analysis of raw materials and products). 7. Safety Guidelines in the Chemical Laboratory • Safe handling of chemicals. • Methods of disposal of chemical waste. • Emergency and safety procedures in the laboratory. These contents provide a strong foundation for understanding analytical chemistry, both theoretically and practically, and help students apply it in multiple fields.

Learning and Teaching Strategies

Learning and Teaching Strategies

Strategies

The learning and teaching strategies of analytical chemistry aim to promote a deep understanding of theoretical concepts and practical applications, and can be classified into:

First: Teaching Strategies

1. Inquiry-Based Learning

• Ask open-ended questions that stimulate critical thinking.

• Encourage students to explore solutions to analytical problems on their own.

2. Problem-Based Learning (PBL)

• Presenting analytical problems that require logical and applied thinking.

• Apply chemical analysis methods to problems from practical reality.

3. Experiential Learning

• Carry out laboratory experiments that help students understand theoretical concepts.

• The use of modern analytical devices such as spectrophotometer and chromatography.

4. Cooperative Learning

• Work in groups to solve chemical problems and conduct experiments.

• Exchange ideas and results to compare and analyze data.

5. Use of technology in teaching

• Integrate computer simulations to explain analytical processes.

• Use data analysis software and e-learning tools.

6. Project-Based Learning

• Assigning students to analytical projects that require research and experimentation.

• Linking the material to the industrial, medical and environmental fields.

Second: Learning strategies for students

1. Self-directed learning

• Encourage students to read books and scientific articles on analytical chemistry.

• Use open educational resources and specialized scientific journals.

2. Active Learning

• Take notes during lectures and discussions.

• Participate in presentations and workshops.

3. Use mind maps and diagrams

• Draw analytical diagrams illustrating the different methods of detecting chemical compounds.

• Use tables to summarize methods of analysis and comparisons between them.

4. Practice & Repetition

• Solve exercises and questions related to the subject on a regular basis.

• Repeat experiments to ensure that analytical steps are understood.

5. Self-Assessment & Feedback

• Review the performance of laboratory experiments and analyze errors.

• Request feedback from professors and colleagues to improve performance.

Applying these strategies helps to enhance the assimilation of analytical chemistry and make it more .interesting and useful for students

Student Workload (SWL) The student's academic load is calculated for 15 weeks			
Structured SWL (h/sem) **Regular academic load of the student during the semester**	50	**Structured SWL (h/w)** **Regular student load per week**	4
Unstructured SWL (h/sem) **Irregular academic load of the student during the semester**	75	**Unstructured SWL (h/w)** **Irregular student academic load per week**	6
Total SWL (h/sem) **The student's total academic load during the semester**	175		

Module Evaluation Course Evaluation					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10%(10)		
	Assignments	2	10%(10)		
	Projects / Lab.	1	10 %(10)		
	Report	1	10%(10)		
Summative assessment	**Midterm Exam**	2hr	10%(10)		
	Final Exam	2hr	50%(50)		
Total assessment			100% (100)		

Delivery Plan (Weekly Syllabus) Theoretical Weekly Curriculum	
	Material Covered
Week 1	Introduction to Analytical Chemistry and its Types

Week 2	Units used to express focus
Week 3	Chemical equilibrium
Week 4	Examples and applications of the solubility quotient and the effect of the common ion
Week 5	Ionic equilibrium
Week 6	Application of acid dissociation constants - base
Week 7	Salts and hydrolysis of salts
Week 8	Structured solution
Week 9	Volumetric analysis of recombination
Week 10	Factors affecting the solubility of deposits and salts
Week 11	Calculations related to quantitative gravimetric analysis
Week 12	Colloidal state
Week 13	Separation methods
Week 14	Extraction methods
Week 15	Preparatory week before the final exam

Delivery Plan (Weekly Lab. Syllabus) Weekly Curriculum of the Laboratory	
	Material Covered
Week 1	Learn about laboratory instruments
Week 2	General introduction to volumetric analysis
Week 3	Tie Tips
Week 4	Determination of acetic acid in industrial vinegar
Week 5	Standard acid preparation
Week 6	Preparing a standard base
Week 7	Determination of Sodium Hydroxide and Carbonate in the Blend
Week 8	Designate acetic acid in commercial vinegar
Week 9	Sedimentation Clearances
Week 10	Fagan method
Week 11	Fulhard method
Week 12	Determination of potassium permanganate using a standard solution of sodium oxalate
Week 13	Complex configuration calibrations
Week 14	Determination of Total Water Hardness Using EDTA
Week 15	Practical exam

Learning and Teaching Resources Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts		Foundations of Analytical Chemistry / Moayad Al-Abaiji Department and Thabet Saeed Al-Ghabsha
Recommended Texts		The Foundations of Analytical Chemistry Book - Scoog translated
Websites	Analytical Chemistry Websites	

Grading Scheme Grading chart				
Group	**Grade**	**Appreciation**	**Marks %**	**Definition**
Success Group (50 - 100)	**A -** Excellent	**privilege**	90 - 100	Outstanding Performance
	B - Very Good	**Very good**	80 - 89	Above average with some errors
	C - Good	**Good**	70 - 79	Sound work with notable errors
	D - Satisfactory	**medium**	60 - 69	Fair but with major shortcomings
	E - Sufficient	**Acceptable**	50 - 59	Work meets minimum criteria
Fail Group	**FX –** File	**Deposit (in processing)**	(45-49)	More work required but credit awarded

(0 – 49)				
	F – Fail	**Failure**	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.