

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	General zoology			Module Delivery	
Module Type	Core			Theory ✓ Lecture ✓ Lab ☐ Tutorial ☐ Practical ✓ Seminar	
Module Code	Bio1101				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level		1	Semester		1
Department		Biology	College	College of Science	
Module Leader		أ.م. حوراء محمود مراد		E-mail	hawraa@vet.uoqasim.edu.iq
Module Leader's Acad. Title		Assist.Professor		Module Leader's Qualification	
Module Tutor		Name (if available)		e-mail	E-mail
Peer Reviewer Name		Name		e-mail	E-mail
Scientific Committee Approval Date		10/09/2025		Version Number	1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	78	Structured SWL (h/w)	5
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	97	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	175		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

**Relation with other Modules**

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	1
Co-requisites module	None	Semester	1

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	This course focuses on the Concepts and definitions: - Integrated Zoology, characteristics of living organism. Element of life, Structure and function of cells, Cell membrane and exchange through cell membrane, Cell energetic. Respiration and glycolysis, TCA oxidative phosphorylation. Animal nutrition. Animal circulation. Animal excretion. Neurons' Neurones, Animal hormones' .
Module Aims أهداف المادة الدراسية	The goal of this course is to develop basic skills and knowledge to raise issues associated, environmental and social issues and to provide techniques to assist in the rational planning and, the student is exposed to the design aspects.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the completion of the course, students are expected to be able to: 1. Define the principles of Zoology. 2. Identify the challenges confronting Zoology. 3. Identify basic components to characterize the quantitative and qualitative nature of Zoology. 4. Identify and analyze actors and decision-making processes related to Zoology. 5. Describe the principle of economic method to Zoology. 6. Describe the various components of Zoology. 7. Describe concepts to determine the Zoology for various uses and users in (amongst others) and explain how these concepts can be used in Zoology. 8. Describe major steps in the participatory and integrated Zoology. 9. explain how the changing balance over time in Biology, demand for water and value of Biology informs (and has been informed by) the biology of development, institutional. 10. Explain and have a critical appreciation of gender, poverty and power, community participation and their implications for Zoology. 11. Explain the theoretical underpinnings and key principles of sustainable development and its application to Zoology. 12. Understand key directions in Zoology for sustainable. 13. Understand the system behaviors and know how to apply the various simulation and optimization techniques to resolves the various socio-technical aspects of Biology. 14. Demonstrate familiarity with Biology issues, including origins, impacts and



	rural and urban settings. 15. Understand the complex interplay between people, climate, land, water and economic development in Zoology. 16. Understand how economic principles can inform planning and allocation of Zoology. 17. Analyze and quantify multiples uses of Zoology for: hydropower, domestic, environment and other uses. 18. Appreciate the relationship between raw data and the interpretations that stem from it, and how a lack of knowledge or uncertain knowledge influences Zoology decision-making. 19. Integrate information from a range of disciplines into a comprehensive picture of Zoology. 20. Evaluate alternative water management strategies by applying multi-criteria analysis. 21. Design Biology. 22. Develop a sound understanding of the principles and issues relating to Zoology. 23. Apply water accounting techniques as a quick method for assessing Zoology. 24. Apply the skill in solving problems facing Zoology. 25. Apply principles of risk assessment in relation to Zoology. 26. Communicate effectively both orally and in writing, the nature of, and solution to, Zoology issues.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - "Basics of zoology " . - Zoology.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	- " Zoology " .	Yes
Recommended Texts	- Zoology Basics.	No
Websites	https://www.coursera.org/browse/Biology-science-and-	



Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
Topic I: Concepts and definitions			
1-2	6	– The Zoology – Three characteristics of life – Integrated Zoology – Policy principles – Sustainability of Zoology – Institutional aspects – Strategic issues	1, 2, 7, 10, 11, and 20
Topic II: - Zoology Development			
3-4	6	– Integrated zoology (IZ) – Planning, Design, Construction – Operation and Maintenance	5, 8, 16, 23, and 26
Topic III: - Zoology			



5-6	6	- Zoology quality and quantity issues - Rules today and tomorrow - Structural and nonstructural control - Metrics and measures	6, 18, 22, 25, and 26
Topic IV: - Zoology			
7-9	9	- The Zoology - Zoology yield - Zoology - The Zoology as a result of human interference.	3, 15, 16, 18 and 26
Topic V: - Zoology principles			
10	3	- Introduction - Issues in Zoology allocation	7, 9, 14, 20, and 24
Topic Zoology Demand			
11	3	Urban Zoology demand - Estimation of urban Zoology demand - Pricing of urban Zoology	12, 14, 15, 18, 20, 25, and 26
12	3	Zoology - Yield response to Zoology - Crop Zoology requirements - Yield reduction due to Zoology	
13	3	Environmental Zoology requirements - Introduction - Quantifying environmental Zoology requirements.	
Topic VII: - Zoology System Analysis			
14-15	18	- Benefit cost analysis - System analysis:- - a- Simulation - b- Optimization - Decision maker Requirements: Problem Definition, Model Construction, Model Validation, Model Solution, Solution	4, 13, 19, 21, 24,25 and 26



Appropriateness, and Results Implementation.

Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Microscope structure and parts
Week 2	Lab 2: Animal cell
Week 3	Lab 3: Animal tissues
Week 4	Lab 4: Connective tissues
Week 5	Lab 5: Special Connective tissues
Week 6	Lab 6: Muscle tissues
Week 7	Lab 7: Exam
Week 8	Lab 8: Animal scientist phylum
Week 9	Lab 9: Platyhelminthes phylum
Week 10	Lab 10: Stringiness phylum
Week 11	Lab 11: Arthropod phylum
Week 12	Lab 12: Mollusca phylum
Week 13	Lab 13: polychaetas phylum
Week 14	Lab 14: Chordata phylum
Week 15	Lab 15: Exam

Learning Outcomes and Assessment Methods for " Zoology Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Concepts and definitions	1, 2, 7, 10, 11, and 20	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam .
Topic II: - Zoology Development	5, 8, 16, 23, and 26	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .
Topic III: - Zoology		Problem Based Learning, Report	Quizzes, discussions during



	6, 18, 22, 25 and 26	Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	lectures, Written Exams, Home work, oral exams .
Topic IV: - Zoology	3, 15, 16, 18 and 26	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .
Topic V: Zoology principles	7, 9, 14, 20, and 24	Theoretical Lectures, Small Group Discussions,	Seminars , quizzes, discussions during lectures, Written Exams, oral exams .
Topic VI: - Zoology Demand	12, 14, 15, 18, 20, 25, and 26	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars , quizzes, Major reports, Written Exams, Home work, oral exams .
Topic VII: Zoology Analysis	4, 13, 19, 21, 24, 25 and 26	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation:-

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	10% (10)	Continuous	
	Seminar	1	10% (10)		
	Field Visits Report	1	10% (10)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Organic Chemistry		Module Delivery		
Module Type	Basic		Theory ✓ Lecture ✓ Lab ☐ Tutorial ☐ Practical ✓ Seminar		
Module Code	Bio1102				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		1			Semester
Department		Biology	College	College of Science	
Module Leader	عقيل علاء حسين		E-mail	aqeelalaa@science.uoqasim.edu.iq	
Module Leader's Acad. Title		Associate Professor	Module Leader's Qualification		Ph.D.
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		2025/9/5	Version Number		

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) +
Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطلاب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	62	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	125		

Relation with other Modules:-

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	



Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	Organic Chemistry I course introduces the foundations of organic chemistry through focusing on structure and bonding of carbon-containing structures alongside with the fundamentals of acidity and basicity of organic molecule to understand the properties and chemical reactivity of organic materials. Then, the course explains the main organic functional groups (such as alkanes, alkenes, alkyl halides, aromatics, carbonyl compounds, amides and amines, and carboxylic acids and their derivatives) and their chemical and physical properties and the main reactions on each functional group. This course will also introduce different aspects of conformational and geometrical isomerism's observed in organic compounds. Having said that, the concepts of stereochemistry in organic compounds will be also covered using some bioactive organic molecules to explain the importance of chirality in biosystems. Finally, introducing the knowledge of reaction mechanisms in organic chemistry and their principles in understanding how reaction takes place will be delivered and applied on some reactions when possible.
Module Aims أهداف المادة الدراسية	Upon completion of this course, students will be able to: • understand bonding and structures and acidity and basicity of organic molecules • gain knowledge of various organic functional groups such as alkanes, alkenes, alkynes, and etc. along with their chemical and physical properties; • gain basic knowledge of organic reactions of each organic functional group with possibility of learning the rules of reaction mechanism • understand and recognize the types of isomerism's present in the main groups of hydrocarbon such as alkanes and alkenes; • understand the concept of stereochemistry in organic molecules and how important in pharmaceutical compounds;
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Understand the system of nomenclature of simple organic compounds belonging to different classes of organic compounds and describe the properties and reactivity of important organic functional groups understand their acid base strength. 2. Know the type of bond formation and breaking of organic reactions in a mechanistic pathway, and how steps in a mechanism can lead to a product. 3. Recognize the stereoisomers and conformational changes in organic compounds. 4. Draw a "curly arrow" for reaction mechanism of some important organic reactions.



Indicative Contents المحتويات الإرشادية	J. McMurry, Fundamentals of Organic Chemistry, 7 th Edition, Mary Finch, 2011.
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Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	J. McMurry, Fundamentals of Organic Chemistry, 7th Edition, Mary Finch, 2011. - Jonathan Clayden, Nick Greeves, and Stuart Warren, Organic Chemistry, 2nd Edition, Oxford University Press, 2012.	No
Recommended Texts	J. McMurry, Fundamentals of Organic Chemistry, 7 th Edition, Mary Finch, 2011.	No
Websites	-----	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
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Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
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COURSE SCHEDULE: -

Week	Hours	Topics Covered	Learning Outcomes
Topic I: Concepts and Definitions of Organic Chemistry			



1-2	4	Structure and Bonding; Acids and Bases • Functional Groups of Organic Chemistry • Drawing Carbon Skeletons • Alkanes and Cycloalkanes •	1-4
Topic II: - Functional Groups of Organic Chemistry			
3-4	4	Alkenes, Alkynes • Aromatic Compounds • Alcohols, Phenols, and Ethers •	1-4
Topic III: - Functional Groups of Organic Chemistry			
5-6	4	Haloalkanes • Amines • Heterocyclic amines • Aldehydes and Ketones •	1-4
Topic IV: - Functional Groups of Organic Chemistry			
7-9	6	Carboxylic Acid Derivatives • Esters •	1-4
Topic V: - Functional Groups of Organic Chemistry			
10	2	Amides • Nitriles •	1-4
Topic VI: - Common Reactions of Organic Functional Groups			
11	2	Reactions of Alkenes • Reactions of Alkyl halides • Reactions of Alcohols •	1-4
12	2	Reactions of Amines • Reactions of Aldehyde or Ketones • Reactions of Carboxylic acids •	
13	2	Reactions of Esters • Reaction of Amides • Reactions of Nitriles •	
Topic VII: - Stereochemistry			
14-15	4	Stereochemistry of Organic Molecules •	1-4
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

Week	Material Covered
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Week 1	Laboratory safety rules and how to conduct tests.
Week 2	Lab 2: Solubility of solid and liquid compounds.
Week 3	Lab 3: Saturation and combustion test.
Week 4	Lab 4: Detection of elements in organic compounds
Week 5	Lab 5: Detection of functional groups in organic compounds.
Week 6	Lab 6: Detection of carboxylic
Week 7	Lab 7: Detection of phenols.

Learning Outcomes and Assessment Methods for "Organic Chemistry" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Concepts and Definitions of Organic Chemistry	1-4	Theoretical Lectures, Exploratory Work Teams, Problem Solving	Quizzes, Discussions during Lectures, Written Exams, Oral Exam, Presentation
Topic II: - Functional Groups of Organic Chemistry	1-4	Theoretical Lectures, Exploratory Work Teams, Problem Solving	Quizzes, Discussions during Lectures, Written Exams, Oral Exam, Presentation
Topic III: - Functional Groups of Organic Chemistry	1-4	Theoretical Lectures, Exploratory Work Teams, Problem Solving	Quizzes, Discussions during Lectures, Written Exams, Oral Exam, Presentation
Topic IV: - Functional Groups of Organic Chemistry	1-4	Theoretical Lectures, Exploratory Work Teams, Problem Solving	Quizzes, Discussions during Lectures, Written Exams, Oral Exam, Presentation
Topic V: - Functional Groups of Organic Chemistry	1-4	Theoretical Lectures, Exploratory Work Teams, Problem Solving	Quizzes, Discussions during Lectures, Written Exams, Oral Exam, Presentation
Topic VI: - Common Reactions of Organic Functional Groups	1-4	Theoretical Lectures, Exploratory Work Teams, Problem Solving	Quizzes, Discussions during Lectures, Written Exams, Oral Exam, Presentation
Topic VII: - Stereochemistry	1-4	Theoretical Lectures, Exploratory Work Teams, Problem Solving	Quizzes, Discussions during Lectures, Written Exams, Oral Exam, Presentation

Module Evaluation:-

Module Evaluation تقييم المادة الدراسية				
As	Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Quizzes	2	10% (10)	5, 10	LO #1, 3 and 5



Formative assessment (40%)	Assignments & H.W.	2	10% (10)	2, 12	LO # 1, 3 and 6
	Projects / Lab.	1	10% (10)	Continuous	
	Seminar	1	10% (10)		
	Field Visits Report	1	10% (10)	10	LO # 3, 6
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # All
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Biophysics			Module Delivery	
Module Type	Basic			Theory ✓ Lecture ✓ Lab ☐ Tutorial ☐ Practical ✓ Seminar	
Module Code	Bio1104				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level		1	Semester		1
Department		Biological	College	College of Science	
Module Leader	Haider Omran Essa		E-mail	haider.o.essa@science.uoqasim.edu.iq	
Module Leader's Acad. Title		Assistant Professor	Module Leader's Qualification		Ph.D.
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		10/9/2025	Version Number		

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	63	Structured SWL (h/w)	4
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعياً	
Unstructured SWL (h/sem)	87	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعياً	
Total SWL (h/sem)	150		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى



Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	Interdisciplinary biophysical research is at the forefront of modern science, emerging as a prime area in industry and academia. Key to recent advances has been the development of pioneering experimental techniques and advanced theoretical/modelling approaches capable of assessing the nanoscale dynamics of nature's biomolecules. This modern armoury of the physicist constitutes a powerful toolbox which can be used to tackle a multitude of open questions related to our understanding of human life and disease. In this module we will cover an exciting array of experimental and theoretical tools from modern biophysics, addressing their purpose, instrumentation, underlying physics, limitations and applications. We will study analysis methods used in research labs around the world, and showcase their application to current research activities
Module Aims أهداف المادة الدراسية	In this module we will review in detail several important modern physical science concepts, models, laws, tools and techniques that can be applied to addressing real biological questions, with a thorough discussion of the underlying physics.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The module will focus on a number of concepts, models, laws, tools and techniques of physical science that underpin biophysical methods. It will address a broad range of challenging biological questions. During this module students will: 1. Comprehend the use of physical concepts and laws to produce models of biological systems, and quantitatively analyse these models. 2. Critically analyse the validity of assumptions made in these models and assess their impact on the validity of the results. 3. Understand the physical basis of experimental techniques used to study the biological systems introduced and explain the key results. 4. Assess the key features and biological significance of the systems introduced. 5. Demonstrate an understanding of the key physical principles behind several important biological processes underpinning living matter. 6. Apply modern biophysical tools and techniques to real applications
Indicative Contents المحتويات الإرشادية	Paul Davidovits, "Physics in Biology and Medicine", Third edition, Elsevier Inc, 2008.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the
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		Library?
Required Texts	- " Paul Davidovits, "Physics in Biology and Medicine", Third edition, Elsevier Inc, 2008.	No
Recommended Texts	- Rodney M. J. Cotterill, "Biophysics", John Wiley & Sons Ltd, 2002.	No
Websites	-----	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
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COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Topic I: Concepts and definitions			
1-2	4	– Introduction – Biophysics – Static Forces – Equilibrium and Stability – Equilibrium Considerations for the Human Body – Stability of the Human Body under the Action of an External Force – Skeletal Muscles	1-6



Topic II: - Fluids			
3-4	4	– Force and Pressure in a Fluid – Pascal's Principle – Hydrostatic Skeleton – Archimedes' Principle – Power Required to Remain Afloat	1-3
Topic III: - The Motion of Fluids			
5-6	4	– Bernoulli's Equation – Viscosity and Poiseuille's Law – Turbulent Flow – Circulation of the Blood – Blood Pressure – Control of Blood Flow	3-6
Topic IV: - Heat and Kinetic Theory			
7-9	6	– Heat and Hotness – Kinetic Theory of Matter – Unit of Heat, Specific Heat, Latent Heats. – Transfer of Heat – Transport of Molecules by Diffusion – Diffusion through Membranes – The Respiratory System – First Law of Thermodynamics – Second Law of Thermodynamics – Difference between Heat and Other Forms of Energy. – Thermodynamics of Living Systems	2-3
Topic V: - Electricity			
10	2	– The Nervous System – The Neuron – Electrical Potentials in the Axon	1-6
Topic VI: - Atomic and Nuclear Physics			
11	2	– The Atom – Spectroscopy	1-6



		– Quantum Mechanics – Electron Microscope	
12	2	– X-rays – X-ray Computerized Tomography – Lasers	
13	2	- The Nucleus - Magnetic Resonance Imaging - Radiation Therapy - Food Preservation by Radiation	
Topic VII: - Optics			
14-15	4	– Vision – Nature of Light – Structure of the Eye – Accommodation – Retina	2-3
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Operating Plateau for the Geiger Tube
Week 2	Lab 2: Geiger Counter Efficiency for Gamma Ray
Week 3	Lab 3: Linear Absorption Coefficient
Week 4	Lab 4: Alpha Range Measurement
Week 5	Lab 5: Half-Life Determination
Week 6	Lab 6: Ionization of Air Using a Radiation Source
Week 7	Lab 7: Inverse Square Law

Learning Outcomes and Assessment Methods for " Biophysics " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Concepts and definitions	1-6	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam .



Topic II: - Fluids	1-3	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .
Topic III: - The Motion of Fluids	3-6	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams .
Topic IV: - Heat and Kinetic Theory	2-3	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .
Topic V: - Electricity	1-6	Theoretical Lectures, Small Group Discussions,	Seminars , quizzes, discussions during lectures, Written Exams, oral exams .
Topic VI: - Atomic and Nuclear Physics	1-6	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars , quizzes, Major reports, Written Exams, Home work, oral exams .
Topic VII: - Optics	2-3	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation:-

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 3 and 5
	Assignments & H.W.	2	10% (10)	2, 12	LO # 1, 3 and 6
	Projects / Lab.	1	10% (10)	Continuous	
	Seminar	1	10% (10)		
	Field Visits Report	1	10% (10)	10	LO # 3, 6
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # All
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information معلومات المادة الدراسية			
Module Title	Arabic Language		Module Delivery
Module Type	Basic		Theory ☒ Lecture Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	Bio1105		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	Semester	1
Department	Biological	College	College of Science
Module Leader	Hassan Mohammed Kadum	E-mail	
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	7/9/2025	Version Number	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Relation with other Modules:-

Relation with other Modules العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	•
Module Aims أهداف المادة الدراسية	وتتلخص الأهداف العامة لتدريس اللغة العربية للمرحلة الإعدادية والتي ينبغي على المعلم أن يتعرف عليها لسعي إلى تحقيقها مع نهاية العام الدراسي في النقاط التالية 1- أن يعتز الطالب باللغة العربية اعتزازاً بحبه إليه وترغيبه فيما حفظته لنا من أمجاد الإسلام ومثلثه العليا في الشجاعة، الصدق، الكرم والوفاء. • يحسن التعبير عما في نفسه لما تقتضيه المواقف، شفهيًا أو كتابيًا بلغة مستقيمة.2- اكتساب الطالب القدرة على التعبير الصحيح في التخاطب، التحدث والكتابة.3-
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	أما الأهداف الخاصة لتدريس اللغة العربية للمرحلة الإعدادية فهي كالتالي: • تأصيل أسس العقيدة الإسلامية السمحة. • غرس الأخلاق الكريمة في نفوس الطلاب. • ترسيخ المثل العليا والمبادئ الفكرية، الروحية والوطنية في نفوس الطلاب. • تنمية عواطف الإيثار، حل العمل، التضحية والخير في نفوس الأبناء. • تنمية الثروة اللغوية لدى الطلاب.5- • الحفاظ على الفصحى والابتعاد عن اللهجة العامية ومعالجة الأخطاء الشائعة. • الارتقاء بأسلوب الطلاب في كل المهارات. • تنمية ملكة تركيب الجمل العربية، تحدثًا وكتابة. • الارتقاء بمهارة الإعراب ومعرفة أهميته في فهم قواعد اللغة العربية. • تنمية ملكة الحفظ لدى الطلاب.10- • المحافظة على اللغة العربية الفصحى والابتعاد عن العامية بحفظ أكبر قدر من النصوص. • الارتقاء بأسلوب التفسير، الإنشاء، والشرح عند الطلاب.
Indicative Contents المحتويات الإرشادية	المسهر في علوم اللغة وأنواعها، معجم لسان العرب لابن منظور

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	المسهر في علوم اللغة وأنواعها، معجم لسان العرب لابن منظور ، دلائل الاعجاز للرجاني	No



Recommended Texts	كتاب الطراز للقريني، دلائل الاعجاز للجرجاني	No
Websites	-----	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	الاستثناء
Week 2	الاستثناء
Week 3	الجملة الاسمية
Week 4	الجملة الاسمية
Week 5	الجملة الفعلية
Week 6	الجملة الفعلية



Week 7	الحروف الناسخة
Week 8	الحروف الناسخة
Week 9	الفعل المضارع
Week 10	النواسخ
Week 11	النواسخ
Week 12	فعل الامر
Week 13	النثر الحديث / السرد
Week 14	الراويّة
Week 15	امتحان نهائي

Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 3 and 5
	Assignments & H.W.	2	10% (10)	2, 12	LO # 1, 3 and 6
	Projects / Lab.				
	Report	1	10% (10)		
	Field Visits Report				
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # All
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information						
معلومات المادة الدراسية						
Module Title	General Mathematics			Module Delivery		
Module Type	Basic			☐ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☒ Seminar		
Module Code	Bio1103					
ECTS Credits	4					
SWL (hr/sem)	100					
Module Level		1		Semester		1
Department		Bachelor's degree (Biology)		College	College of science	
Module Leader	م.مريم صبيح علي			E-mail	maryam_sabbbeh@science.uoqasim.edu.iq	
Module Leader’s Acad. Title		Assistant Professor		Module Leader’s Qualification		MASTER
Module Tutor	Maryam sabbbeh ali			e-mail	maryam_sabbbeh@science.uoqasim.edu.iq	
Peer Reviewer Name				e-mail		
Scientific Committee Approval Date		9/9/2025		Version Number		1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	48	Structured SWL (h/w)	2
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	52	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	100		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-



Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	Mathematics is an area of knowledge that includes the topics of numbers, formulas and related structures, shapes and the spaces in which they are contained, and quantities and their changes. These topics are represented in modern mathematics with the major subdisciplines of number theory, algebra, geometry, and analysis, respectively. There is no general consensus among mathematicians about a common definition for their academic discipline. Most mathematical activity involves the discovery of properties of abstract objects and the use of pure reason to prove them. These objects consist of either abstractions from nature or—in modern mathematics—entities that are stipulated to have certain properties, called axioms. A <i>proof</i> consists of a succession of applications of deductive rules to already established results. These results include previously proved theorems, axioms, and—in case of abstraction from nature—some basic properties that are considered true starting points of the theory under consideration. Mathematics is essential in the natural sciences, engineering, medicine, finance, computer science and the social sciences. Although mathematics is extensively used for modeling phenomena, the fundamental truths of mathematics are independent from any scientific experimentation. Some areas of mathematics, such as statistics and game theory, are developed in close correlation with their applications and are often grouped under applied mathematics. Other areas are developed independently from any application (and are therefore called pure mathematics), but often later find practical applications. The problem of integer factorization, for example, which goes back to Euclid in 300 BC, had no practical application before its use in the RSA cryptosystem, now widely used for the security of computer networks. Historically, the concept of a proof and its associated mathematical rigour first appeared in Greek mathematics, most notably in Euclid's <i>Elements</i>. Since its beginning, mathematics was essentially divided into geometry and arithmetic (the manipulation of natural numbers and fractions), until the 16th and 17th centuries, when algebra and infinitesimal calculus were introduced as new areas. Since then, the interaction between mathematical innovations and scientific discoveries has led to a rapid lockstep increase in the development of both. At the end of the 19th century, the foundational crisis of mathematics led to the systematization of the axiomatic method, which heralded a dramatic increase in the number of mathematical areas and their fields of application. The contemporary Mathematics Subject Classification lists more than 60 first-level areas of mathematics.
Module Aims أهداف المادة الدراسية	1. The first level is to improve understanding (ability development). In interpretation, prediction and conclusion 2. The second level is the development of applied capabilities (Application) 3. The third level gives the student the ability to analyze 4. The fourth level is to develop the student's ability to integrate ideas and information (level Synthesis (which is the opposite of analysis) 5. Level 5: Evaluation: Developing the student's ability to judge a value learned



	material
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the completion of the course, students are expected to be able to: 1- Teaching the student to receive (receiving) Receiving 2- Developing the student's ability to respond 3-c That the student be able to evaluate (give a value). 4- Improving the student's ability to value organization 5- C Integration of value with the behavior of the individual (giving a personality trait) Characterization by the vaule
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. -Serie Schaum Mathematics

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Real functions	Yes
Recommended Texts	Integles and derveies	yes
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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COURSE SCHEDULE:-



Delivery Plan (Weekly Lab. Syllabus)

المناهج الاسبوعي النظري

	Material Covered
Week 1	الاعداد الحقيقية والدوال
Week 2	النهايات والاستمرارية والاشتقاقات
Week 3	اشتقاق وتفاضل الدوال المتسامية
Week 4	الدوال الزائدية
Week 5	المحددات وصفاتها
Week 6	المصفوفات وصفاتها وحجمها وظربها
Week 7	حل جملة المعادلات الخطية بواسطة المصفوفات
Week 8	طرق التكامل وتقريب التكامل بطريقتي شبه المنحرف وطريقة السمسونية
Week 9	التكاملات اللانهائية
Week 10	الاحداثيات القطبية
Week 11	تقارب وتباعد المتسلسلات
Week 12	متسلسلات تيلر وكولرين وطريقة استعمالها
Week 13	التفاضل الجزئي
Week 14	التكاملات المضاعفة
Week 15	التكامل الخطي

Learning Outcomes and Assessment Methods for " General Mathematics " Course.

- Conducting fun positive competitions.
- Organizing lectures prepared by students.
- Formation of volunteer work groups.
- Scientific trips

Module Evaluation:-

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11



Formative assessment (40%)	Assignments & H.W.	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Seminar	1	10% (10)		
	Field Visits Report				
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		



MODULE DESCRIPTION

وصف المادة الدراسية

Module Information

معلومات المادة الدراسية

Module Information					
معلومات المادة الدراسية					
Module Title	حقوق الإنسان والديمقراطية		Module Delivery		
Module Type	Basic		Theory ☒ Lecture Lab ☐ Tutorial ☐ Practical ☐ Seminar		
Module Code	Bio1106				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level		UC	Semester of Delivery		1
Administering Department		Type Dept. Code	College	Type College Code	
Module Leader	أ.م. فاضل راضي محمد حمود الخشخشي		e-mail	fadhilu99@biotech.uoqasim.edu.iq	
Module Leader's Acad. Title		Ass.Proff	Module Leader's Qualification		
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		4/9/2025	Version Number		1.0

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem)	33	Structured SWL (h/w)	2
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	67	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	100		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. تطوير معلومات الطلبة بأهمية التعرف على ماهية حقوق الانسان والحرية والديمقراطية . 2. تدريس الطلبة مجموعة من الحقوق والحريات المعاصرة لاسيما تلك التي على مساس بتخصصهم . 3. تدريس الطلبة موضوع الديمقراطية ومبادئها واسسها وقواعدها العامة وتطبيقاتها السليمة. 4. تطوير فهم الطلبة بشأن النظم الانتخابية كونها وسيلة رئيسية في اسناد السلطة في الديمقراطية . 5. تعزيز التزام الطلبة بالنظام العام والقوانين التي تحدد وتضمن الحقوق والحريات. 6. تقنين وضبط سلوك الطلبة عند ممارستهم لحقوقهم وحرياتهم من خلال مراعاة حقوق وحريات الآخرين والملكيات العامة والخاصة واحترام سيادة الدولة وتعزيز روح المواطنة. 7-إطلاع الطلبة على آخر المستجدات في مجال حقوق الانسان والحريات العامة والديمقراطية الالكترونية .
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. التعرف على القواعد العامة للحقوق والحريات والديمقراطية. 2. التعرف على كيفية ممارسة الحقوق والحريات ضمن إطار منظومة القوانين السائدة . 3. التعرف على كيفية تمكين المرأة في المجتمع التي تمثل نصفه من دون أن تتمتع

	بكامل حقوقها. 4 .التعلم بكيفية المحافظة على السلم المجتمعي كل حسب موقعه في المجتمع. 5 . التعرف على إيجابيات وسلبيات النظم الانتخابية المعتمدة وماهية النظام الانتخابي الأمثل. 6 . إدراك أهمية دراسة موضوع حقوق الانسان والحريات العامة في العراق من خلال التحديات التي تواجهها وسبل مواجهتها او حلها. 7 .التعرف على الضمانات الدستورية للحقوق والحريات وكيفية الاستفادة منها عمليا.
Indicative Contents المحتويات الإرشادية	- تتضمن هذه المادة ثلاثة أقسام، وهي : القسم الأول- حقوق الإنسان: نتناول في هذا القسم مفهوم حقوق الإنسان، وتعريفه، ومميزاته، وخصائصه، وتصنيف الأمم المتحدة لها، وأهمية دراستها في العراق والإشكاليات التي تواجه موضوع حقوق الإنسان. ثم نعرض حقوق الإنسان في ميثاق الأمم المتحدة، وإعلانها لعام 1948، وعهدها لعام 1966، وأنشائها مجلس الأمم المتحدة لحقوق الإنسان، ونبين اختصاصاته وتكوينه. ومن ثم سوف نتطرق الى نماذج مختارة من الحقوق لاسيما الحق في التعايش الاجتماعي السلمي، وحق المرأة العراقية في التمكين والقيادة، والحق في الصحة والعيش في بيئة نظيفة، ثم نحلل حقوق الإنسان الواردة في دستور جمهورية العراق لعام 2005 والضمانات الخاصة بها. القسم الثاني- الحريات العامة: نتناول في هذا القسم مفهوم وتعريف الحريات العامة، وتصنيفها وخصائصها، وبيان أن المساواة القانونية هي أساس الحريات العامة، لارتباطها بالعدالة وبالحقوق والحريات، والقضاء، ووظائف الدولة والمنافع والتكاليف العامة. وعرض جوانب المساواة في الحقوق المدنية والسياسية، والحقوق الاجتماعية والاقتصادية والثقافية. ومن ثم ندرس نماذج مختارة من الحريات العامة لاسيما حرية التظاهر السلمي وحرية الدين أو المعتقد وضماناتهما القانونية. القسم الثالث- الديمقراطية: نتناول في هذا القسم مفهوم الديمقراطية وتعريفها ومبادئها، وأشكالها من حيث ممارسة الشعب للسلطة، وندرس علاقة الحكومة الديمقراطية بوسيلة الانتخاب. ثم نبين ونحلل نظم الانتخاب الرئيسية، وهي: نظام الانتخاب بالأغلبية، ونظام الانتخاب بالتمثيل النسبي، وبما يتضمنه من طرق احتساب الأصوات المتبقية. ثم نعرض أساليب الديمقراطية من خلال



	دراسة نظم الاقتراع المقيد والعام، وبعدها ندرس تطبيق طريقة سانت لاغو في العراق على مستوى مجالس المحافظات ومجلس النواب ونقدم تقييما موضوعيا لهذه التجربة، ونخصص حيزا لأنواع الديمقراطية الناشئة لاسيما الديمقراطية التوافقية والمحلية والإلكترونية.
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	الإستراتيجية الرئيسية التي سيتم تبنيها في تقديم هذه المادة: 1-إلقاء المحاضرات باستخدام الوسائل الحديثة (DATA SHOW) (LCD). 2-استخدام المنصات الإلكترونية الرسمية عند تطلب الأمر ذلك. 3- تشجيع الطلاب على المشاركة في الحوارات العلمية. 4- تحسين مهارات التفكير النقدي وتعزيزها لدى الطلبة. 5-العصف الذهني. 6-حث الطلبة على القيام بأنشطة علمية تخص المادة، بما فيها إجراء أوراق بحث (PAPER). 7-تزويد الطلبة بنسخ صوتية وفيديوية للمحاضرات. 8-إجراء الاختبارات والامتحانات الشفوية والتحريرية المفاجئة والمخططة.
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Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	د. منذر الشاوي، فلسفة الدولة، ط2، الذاكرة للنشر والتوزيع، بغداد ، 2013. د. حميد حنون، حقوق الإنسان، مكتبة السهوري، بغداد، 2013. د. علي الشكري ، حقوق الانسان بين النظرية والتطبيق ، ايتراك للطباعة والنشر ، القاهرة ، 2009 .	Yes

	د.عدنان عاجل عبید ، القانون الدستوري النظرية العامة والنظام الدستوري في العراق ، ط2 ، مؤسسة النبراس للطباعة والنشر ، العراق -النجف الأشرف ، 2012 . د.علي هادي حميدي الشكراوي، النظم السياسية المعاصرة، (القاهرة: دار النهضة العربية، 2014). د. محمد ثامر، حقوق الإنسان المبادئ العامة والأصول، مكتبة السنهوري، بغداد ، 2012. -أرنت ليبهارت، الديمقراطية التوافقية في مجتمع متعدد ، معهد الدراسات الاستراتيجية، الفرات للنشر والتوزيع، بيروت، 2006. -أركان عباس حمزة الخفاجي، الحق في حرية التظاهر السلمي-دراسة مقارنة، رسالة ماجستير غير منشورة، كلية القانون - جامعة بابل، 2013. - سعد مظلوم عيد الله العبدلي - ضمانات حرية ونزاهة الانتخابات (دراسة مقارنة) - رسالة ماجستير - كلية القانون - جامعة بابل -2007 . - نوال مغزيلي، دور تكنولوجيا الإعلام والاتصال في إرساء ممارسة جديدة للديمقراطية: الديمقراطية الإلكترونية، عدد الثالث (يونيو - حزيران) لسنة 2017 ، مجلة العلوم السياسية والقانون، المركز الديمقراطي العربي.	
Recommended Texts	-الأمم المتحدة، ميثاق الأمم المتحدة والنظام الأساسي لمحكمة العدل الدولية، إدارة شؤون الإعلام، الأمم المتحدة، 1999. -الأمم المتحدة، الجمعية العامة، الإعلان العالمي لحقوق الإنسان، القرار رقم (217 ألف د-3) ، الصادر بتاريخ : 10/كانون الأول/ 1948 . - الأمم المتحدة، مجموعة صكوك دولية، المجلد الأول، الأمم المتحدة، نيويورك، 1993، (Part 1 ,A.94.XIV-Vol.1) . -دستور جمهورية العراق لعام 2005 . منشور في الوقائع العراقية، العدد (4012)، بتاريخ: 28 كانون الأول 2005 ، السنة السابعة و الأربعون .	Yes
Websites	https://www.un.org/ar/sections/issues-depth/global-issuesoverview/index.html	
Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري		
	Material Covered	
Week 1	ماهية حقوق الإنسان: المفهوم والتعريف والمميزات والخصائص وأهمية دراستها في العراق	
Week 2	حقوق الإنسان في ميثاق منظمة الأمم المتحدة و اعلانها والعهدين ومجلسها	



Week 3	الحق في التعايش الاجتماعي السلمي ووسائل تحقيقه
Week 4	تمكين المرأة العراقية بوصفها أحد حقوقها المهمة
Week 5	الحق في الصحة والعيش في بيئة نظيفة
Week 6	حقوق الإنسان في ظل دستور جمهورية العراق لعام 2005 وضماناتها
Week 7	ماهية الحريات العامة: مفهومها وتعريفها وتصنيفها وخصائصها
Week 8	المساواة والحريات العامة
Week 9	حرية التظاهر السلمي: المفهوم والخصائص والاركان والضمانات القانونية
Week 10	حرية الدين أو المعتقد: المفهوم والخصائص والضمانات القانونية
Week 11	الديمقراطية وأشكالها ووسيلة اسناد السلطة
Week 12	نظم الانتخاب الرئيسية: الأغلبية والتمثيل النسبي
Week 13	أساليب الديمقراطية: نظم الاقتراع المقيد والعام
Week 14	تطبيق طريقة سانت لاغو في العراق وتقييمها
Week 15	الديمقراطية التوافقية والمحلية والإلكترونية
Week 16	Preparatory week before the final Exam

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded



(0 – 49)	F – Fail	راسب	(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 Evaluation:-

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 3 and 5
	Assignments & H.W.	2	10% (10)	2, 12	LO # 1, 3 and 6
	Projects / Lab.				
	Seminar				
	Field Visits Report	1	10% (10)	10	LO # 3, 6
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # All
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

"COURSE PORTFOLIO"

Module Information

معلومات المادة الدراسية



Module Title	Botany	Module Delivery	
Module Type	Core	☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code	Bio1217		
ECTS Credits	8		
SWL (hr/sem)	200		
Module Level	1	Semester	2
Department	Biology	College	College of science
Module Leader	أ.م.د. مهند محمد صاحب	E-mail	mohanad.sahib@science.uoqasim.edu.iq
Module Leader's Acad. Title	Ass.Proff	Module Leader's Qualification	PhD
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	15/9/2025	Version Number	1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	107	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)			200
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	



Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	Teaching the students what is the <u>Botany how to scientific study of plants, algae, and fungi</u>. It includes the study of plant growth, structure, reproduction, metabolism, diseases, physiology, and chemical properties of the plants. Botany is studied in the context of general science and is more theoretical than practical. This course is useful for anyone pursuing a career in general biology, horticulture, agriculture, or ecology
Module Aims أهداف المادة الدراسية	The main goal of study 1. Describe the field of Botany. 2. Interrelate other fields and sub-discipline of botany. 3. Trace the timeline of developments in botany. 4-Understand the basic structures of plants 5-Teaching the student how to study the types of plants and how to identify it and understand the vital process that take place in the plant organs at the cellular level.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Students will be able to apply the scientific method to questions in biology by formulating testable hypotheses, gathering data that address these hypotheses, and analyzing those data to assess the degree to which their scientific work supports their hypotheses. 2. Students will be able to present scientific hypotheses and data both orally and in writing in the formats that are used by practicing scientists. 3. Students will be able to access the primary literature, identify relevant works for a particular topic, and evaluate the scientific content of these works. 4. Students will be able to apply fundamental mathematical tools (statistics, calculus) and physical principles (physics, chemistry) to the analysis of relevant biological situations. 5. Students will be able to identify the major groups of organisms with an emphasis on plants and be able to classify them within a phylogenetic framework. Students will be able to compare and contrast the characteristics of plants, algae, and fungi that differentiate them from each other and from other forms of life. 6. Students will be able to use the evidence of comparative biology to explain how the theory of evolution offers the only scientific explanation for the unity and diversity of life on earth. They will be able to use specific examples to explicate how descent with modification has shaped plant morphology, physiology, and life history. 7. Students will be able to explain how organisms function at the level of the gene, genome, cell, tissue, organ and organ-system. Drawing upon this knowledge, they will be able to give specific examples of the physiological adaptations, development, reproduction and behavior of different forms of life. 8. Students will be able to explicate the ecological interconnectedness of life on earth by tracing energy and nutrient flows through the environment. They will be able to relate the physical features of the environment to the structure of populations,



	communities, and ecosystems. 9. Students will be able to demonstrate proficiency in the experimental techniques and methods of analysis appropriate for their area of specialization within biology classification and basic principles of enzyme functioning.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. -

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	- Botany : An Introduction to Plant Biology by James D. Mauseth (1998, Hardcover, Revised edition)	yes
Recommended Texts	- Botany : An Introduction to Plant Biology, Sixth Edition / AvaxHome	yes
Websites	-	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.				

COURSE SCHEDULE:



Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Chemistry of life
Week 2	Pro and eukaryotic
Week 3	The cell wall and cell membrane
Week 4	Cell organelle
Week 5	Classification of organism
Week 6	Plant cell structure
Week 7	The plant body
Week 8	Water absorption and transpiration
Week 9	Diffusion and osmosis
Week 10	Light, fitness of light
Week 11	photosynthesis
Week 12	Respiration 1
Week 13	Respiration 2
Week 14	Cell division
Week 15	Plant genetics



Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	The Microscope
Week 2	Plant cell
Week 3	(Prokaryote and Eukaryote cell)
Week 4	Cell Division (Reproduction)
Week 5	Plant Tissue
Week 6	Meristematic Tissue
Week 7	Parenchyma
Week 8	Chlorenchyma
Week 9	Sclerenchyma
Week 10	Xylem
Week 11	Phloem
Week 12	Root
Week 13	Stem
Week 14	Leaf
Week 15	Cell Physiology

Learning Outcomes and Assessment Methods for " Botany " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Chemistry of life	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
— Topic II: Pro and eukaryotic	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: The cell wall and cell membrane		Problem Based Learning, Report Writing, Theoretical Lectures,	Quizzes, discussions during lectures, Written Exams,



	3, 4, 5, 6 and 9	Small Group Discussions, Scientific Films.	Home work, oral exams.
Topic IV: - Cell organelle	3, 4, 5, 6,9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic V: Diffusion and osmosis	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: Water absorption and transpiration	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII: Respiration 1	2, 4, 6, 7and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Analytical Chemistry			Module Delivery	
Module Type	Basic			☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code	Bio1208				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level		1	Semester		2
Department		Biology	College	College of science	
Module Leader	م. احمد منصور محسن		E-mail	ahmed.mansor@science.uoqasim.edu.iq	
Module Leader's Acad. Title		مدرس	Module Leader's Qualification		
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		11/9/2025	Version Number	1.0	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) +
Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	82	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	175		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-



Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	
Module Aims أهداف المادة الدراسية	يتعلم الطالب عن: أهمية الكيمياء التحليلية وأنواعها. طرق إيجاد تركيزات المواد الكيميائية وأنواع المعايرة الكيميائية. المبادئ الأساسية لطرق التحليل الكمي والنوعي في الكيمياء التحليلية
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. شرح أساسيات الكيمياء التحليلية وخطتها التحليل المميز، علاوة على ذلك، بحر عن دور الكيمياء التحليلية في العلوم. 2. مقارنة التحليلات النوعية والكمية من خلال أ- التدقيق عن طرق التحليل الكمي، بد التدقيق عن طرق التحليل النوعي، ج- تقييم البيانات التحليلية من حيث الإحصاء. 3. يعرف المقصود والقاعدة بنظرياتها ويشرح سلوكياتها، على الرغم من دراسة خصائصها مثل التوازن الأيوني والمحاليل العازلة. 4. شرح التحليل الحجمي للمحاليل والتعبير عن الحسابات الوزنية 5. التعبير عن طرق التحليل بالمعايرة، علاوة على ذلك، التعبير عن مصطلحات مثل الحل القياسي. المعايرة بالمعايرة بالتحليل الحجمي الخلفي، نقطة التكافؤ، نقطة النهاية المجاز الأساسي والثانوي. 6. كن مستعداً للبحث من حامل تحليل الأوراق البحثية المنشورة وكتابة بحث مصغر منها.
Indicative Contents المحتويات الإرشادية	1- نطاق الكيمياء التحليلية يبحث العلم عن وسائل محسنة لقياس التركيب الكيميائي للمواد الطبيعية والاصطناعية باستخدام تقنيات تحديد المواد التي قد تكون موجودة في مادة ما وتحديد الكميات الدقيقة المحددة. 2- تحليل الكمي: يتضمن هذا الموضوع شرح التقنية التي تستخدم النمذجة الرياضية والإحصائية والقياس والبحث لفهم السلوك، وكيف سيكون مفيداً للطالب في حياته. 3- مراجعة شاملة الأولى المهمة للكيمياء التحليلية الشوارد القوية والضعيفة ؛ وحدات الوزن والتركيز الهامة ، تقييم البيانات التحليلية: تعريف المصطلحات المقدمة في التحليل الوزني التحليل الإحصائي للبيانات التي رفضت البيانات - طرق تحديد الأمطار عامل الجاذبية. 4- بدأ والقواعد شرح معنى مفهومها والنظريات المتاحة التي تم الحصول عليها لوصف سلوكها 5- الاتزان الكيميائي يشير إلى حالة النظام الذي لا يتغير فيه تركيز المتفاعل وتركيز النواتج بحلول الوقت، ولا يظهر النظام أي تغير آخر في الخواص. 6- التوازن الأيوني يسمى التوازن الذي ينشأ بين جزيئي النقاية والأيونات في محلول الشوارد الضعيفة بتوازن الأيوني 7- محلول عازل يصف حمضاً أو محلول مالياً قاعدياً يتكون من خليط من حمض ضعيف وقاعدته المرافقة ، أو



	العكس. 8 - التحليل الحجمي هو طريقة تحليلية كمية تستخدم على نطاق واسع. كما يوحي الاسم، تتضمن هذه الطريقة قياس حجم محلول يعرف تركيزه ويطبق لتحديد انتباه المادة المراد تحليلها.
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Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	- 7th Edition of Analytical Chemistry - Fundamentals of Analytical Chemistry - Principles and Practice of Analytical Chemistry	yes
Recommended Texts	- Modern Analytical Chemistry	yes
Websites	https://techchemistrydocs.com/Books/Analytical-Chemistry-by-Gary-D	

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.				

COURSE SCHEDULE: -

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Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	نطاق الكيمياء التحليلية.
Week 2	التحليل الكمي.
Week 3	التحليل النوعي
Week 4	الأحماض والقواعد.
Week 5	نظريات الأحماض والقواعد.
Week 6	التوازن الكيميائي.
Week 7	التوازن الأيوني
Week 8	الحل العازل.
Week 9	مقدمة في طرق التحليل الحجمي.
Week 10	الحسابات الحجمية
Week 11	معايرة القاعدة الحمضية.
Week 12	معايرة الترسيب.
Week 13	معايرة الأكسدة المختزلة.
Week 14	معايرة الأكسدة المختزلة.
Week 15	الامتحان النهائي

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	سلامة المختبر والتعرف على الأواني الزجاجية وأماكن في مختبر الكيمياء التحليلية
Week 2	التجربة 1: تحضير 0.1 متر من محلول حمض الهيدروكلوريك
Week 3	التجربة 2: تحضير 0.1 متر من مسحوق كلوريد الصوديوم
Week 4	التجربة 3: تحضير 0.1 نيوتن من مسحوق هيدروكسيد الصوديوم.



Week 5	مناقشة التقرير التجريبيين 1 و 2
Week 6	مناقشة النتائج التجربة 3
Week 7	التجربة 4: ترسيب العناصر الكيتونية (أيونات Ag و Cu و Pb)
Week 8	التجربة 5: ترسيب العناصر الأنيون (Br و Cl)
Week 9	مناقشة للتجربة 4
Week 10	مناقشة للتجربة 5
Week 11	التجربة 6: معايرة حمض قوي بقاعدة قوية
Week 12	تجربة 7 معايرة هيدروكسيد الصوديوم بحمض الهيدروكلوريك معايرة حمض قوي إلى قاعدة ضعيفة
Week 13	مناقشة للتجارب 6
Week 14	مناقشة للتجارب 7
Week 15	الامتحان النهائي

Learning Outcomes and Assessment Methods for "Analytical Chemistry" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I التحليل الكمي.	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
Topic II: التحليل النوعي	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: التوازن الكيميائي.	3, 4, 5, 6 and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: - التوازن الأيوني	3, 4, 5, 6, 9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic V: الحل العازل.	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: الحسابات الحجمية	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.



		Films, and, Exploratory Work Teams.	
Topic VII: معايرة الأكسدة المختزلة.	2, 4, 6, 7and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation: -

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)		
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information معلومات المادة الدراسية			
Module Title	Theoretical Biosecurity and Biosecurity		Module Delivery
Module Type	Basic		☐ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	Bio1217		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester	2
Department	Biology	College	College of science
Module Leader	أ.م.د. ضرغام علي عباس		E-mail dhurgham-ali@science.uoqasim.edu.iq
Module Leader's Acad. Title	Ass.Prof.	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	7/9/2025	Version Number	1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures)
+Unstructured SWL (h/w).

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	92	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Relation with other Modules: -

**Relation with other Modules**

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	To protect human health and to increase and protect agricultural produce through the prevention, control and management of biological risk factors. Biosecurity also aims to protect against acts of bioterrorism and to prevent adverse biosecurity events as well as offering advice on appropriate interventions and political and social changes that should be adopted by government regulatory agencies.
Module Aims أهداف المادة الدراسية	To enhance national ability to protect human health, agricultural production systems, and the people and industries that depend on them.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The intended subject specific learning outcomes. On successfully completing the module students will be recognize on the : 1- Biosecurity in laboratories 2- Laboratory Risks 3- Biosecurity hazards 4- factors influencing biosecurity 5- Applied biosecurity in practice 6- Elements of a Strong Biosecurity Program
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Laboratory Biosafety and Biosecurity Manual Fourth Edition

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	- Laboratory Biosafety and Biosecurity Manual Fourth Edition	yes
Recommended Texts	- Laboratory Biosafety and Biosecurity Manual Fourth Edition - Neutralization and Disposal of Laboratory Scale Toxic	Yes



	Chemicals.	
Websites	https://creativecommons.org/licenses/by-nc-sa/3.0/igo	

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.				

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Topic I: What is Biosecurity?			
1	2	- What is Biosecurity - History of Biosecurity	1, 2, 3, 6, and 9
Topic II: - Differentiating between biosafety and biosecurity			
2-3	4	- BIOSAFETY - BIOSECURITY - Goals of Biosecurity - Some factors influencing biosecurity - What are the Biosecurity hazards?	3, 4, 5, and 9
Topic III: - Biosecurity in laboratories			
4-5	4	- Biosecurity in laboratories - The two major biological threats that are faced in biosecurity include: - Laboratory Risks	3, 4, 5, and 9



Topic IV: - Biosecurity risks

6	2	- Biosecurity risks - Category A - Category B - Category C	1, 3, 4, 8 and 8
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Topic V: Laboratory biosecurity program

7	2	- Laboratory biosecurity program - Responsibility for VBM (Valuable Biological Material)	3, 8, and 9
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Topic VI: - Elements of a Strong Biosecurity Program

8	2	- Elements of a Strong Biosecurity Program - The Virtual Biosecurity Center (VBC)	3, 8, 9 and 10
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Topic VII:- Participating Organizations

9-12	8	- Participating Organizations - Participating Organizations: - Developing a Biosecurity Program - A Biosecurity Risk Assessment and Management Process - Risk analysis of specific security scenarios - Applied biosecurity in practice - Employee accountability - Material control	4, 10 and 11
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Topic VIII:- Physical security

13-14	4	- Physical security - Information security - Transfer and transport security	
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Final Exam

Learning Outcomes and Assessment Methods for " Theoretical Biosecurity and Biosecurity " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: What is Biosecurity	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.



- Topic II: - Differentiating between biosafety and biosecurity	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
- Topic III: - Biosecurity in laboratories	3, 4, 5, 6and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
- Topic IV: - Biosecurity risks	3, 4, 5, 6,9and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
- Topic V: Laboratory biosecurity program	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
- Topic VI: - Elements of a Strong Biosecurity Program	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
- Topic VII:- Participating Organizations	2, 4, 6, 7and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.
- Topic VIII:- Physical security	2, 4, 6, 7and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation:-

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments & H.W.	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)		
	Field Visits				
	Report				
	Discussions				



	During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		



نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	الاحصاء الحياتي		Module Delivery	
Module Type	Basic		Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical Seminar	
Module Code	Bio1209			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level		Undergraduate	Semester of Delivery	
Administering Department		Biology	College	College of science
Module Leader	Maryam sabbbeh ali		e-mail	maryam_sabbbeh@science.uoqasim.edu.iq
Module Leader's Acad. Title		مدرس	Module Leader's Qualification	
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name		Name	e-mail	E-mail
Scientific Committee Approval Date		12/9/2025	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives	1- تعريف الطالب بأهمية الاحصاء الحيوي

أهداف المادة الدراسية	2- تدريب الطالب على الاختبارات الاحصائية في المجال الحيوي 3- دراسة اهم اساليب جمع البيانات الصحية وكيفية تحليلها 4- تدريب الطالب على كيفية تفريغ البيانات بشكل جداول 5- تمكين الطالب من التمثيل البياني للبيانات الاحصائية الكمية او الوصفية 6- التركيز على كيفية التوزيع التكراري للبيانات 7- معرفة مقاييس النزعة المركزية وانواع هذه المقاييس 8 – التدريب على تطبيقات الحقيبة الاحصائية
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- تعريف الطالب بالعلاقة بين الاحصاء والعلوم الاخرى 2- أن يستطع الطالب التعامل مع العمليات الاحصائية والنتائج 3- قدرة الطالب علي اجراء الاستنتاجات وتقييم النتائج 4- يتعلم الطالب طرق تنفيذ خطة اخصائية والوصول الي نتائج ذات قيمة متغيرة مفيدة للتجربة ككل 5- أن يستطع الطالب فهم أمثلة لأنواع مختلفة من البيانات افي الصحة العامة والدراسات السريرية 6- أن يستطيع الطالب علي تفسير الاختلافات في توزيع البيانات من خلال الجداول أو المخططات
Indicative Contents المحتويات الإرشادية	In theory #1-#5 they will need (25hr). In theory lab #7- #13 they will need (10hr). In theory lab #15 they will need (5hr).

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم



Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	10	4	#4
	Assignments	2	10	13 and 14	#1 and #12
	Tutorial/ Seminar	1	10	continuous	all
	Report				
Summative assessment	Midterm Exam	2h	10	7	#1-#6, #8-#14
	Final Exam	3h	50	16	all
Total assessment			100% (100 Marks)		



Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	المقدمة في الاحصاء
Week 2	تعريف الاحصاء
Week 3	علاقة الاحصاء بالعلوم الاخرى
Week 4	جمع البيانات
Week 5	مصادر البيانات
Week 6	الاستمارة الاحصائية
Week 7	عرض البيانات
Week 8	العرض الجدول للبيانات
Week 9	التوزيع التكراري
Week 10	Mid exam
Week 11	العرض الهندسي للبيانات
Week 12	مقاييس النزعة المركزية
Week 13	مقاييس التشتت
Week 14	الارتباط والانحدار
Week 15	مبادئ الاحتمالات
Week 16	تطبيقات الحقيبة الاحصائية (SPSS)

Learning and Teaching Resources

مصادر التعلم والتدريس



	Text	Available in the Library?
Required Texts	حساب التفاضل والتكامل تأليف د. علي عزيز علي - جامعة الموصل الاحصاء تأليف محمود حسن المشهداني وامير حنا - جامعة بغداد	
Recommended Texts	مبادئ الاساليب الاحصائية تأليف د. عبد العزيز فهمي هيكل ١٩٦٦ - دار النهضة العربية - بيروت	
Websites	related scientific papers, https://www.researchgate.net/publication/289980213	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	English Language			Module Delivery	
Module Type	Basic			☐ Theory ☒ Lecture ☐ Tutorial ☐ Practical Seminar Lab	
Module Code	Bio12010				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		1		Semester	2
Department		Biology		College	College of science
Module Leader	م. ناظم طهيلي سالم			E-mail	
Module Leader's Acad. Title		مدرس		Module Leader's Qualification	
Module Tutor	Name (if available)			e-mail	E-mail
Peer Reviewer Name		Name		e-mail	E-mail
Scientific Committee Approval Date		11/9/2025		Version Number	1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	33	Structured SWL (h/w)	2
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	50		
الحمل الدراسي الكلي للطالب خلال الفصل			



Relation with other Modules:-

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	
Module Aims أهداف المادة الدراسية	New Headway Beginner Plus is a Beginner course in English intended to provide students with the fundamentals of the language and a foundation at First Year students / college of science, moving towards a higher level of proficiency at this stage. 1. Listening Objectives: ☐ Understand and respond to basic greetings, introductions, and simple instructions. ☐ Comprehend and extract information from short, simple spoken passages related to everyday topics. ☐ Identify and understand common vocabulary and expressions in spoken English. 2. Speaking Objectives: ☐ Engage in basic conversations using simple greetings, introductions, and expressions related to personal information. ☐ Ask and answer simple questions about personal details, daily routines, and familiar topics. ☐ Participate in short dialogues and role-plays to practice communication skills. 3. Reading Objectives: ☐ Read and comprehend simple texts, such as signs, labels, short passages, and dialogues. ☐ Recognize and understand basic vocabulary words and phrases in context. ☐ Extract information from texts related to everyday situations and topics. 4. Writing Objectives: ☐ Write short sentences and paragraphs about personal information, experiences, and familiar topics. ☐ Fill out basic forms with personal details, such as name, age, and



	nationality. ☐ Write simple messages, notes, and emails related to everyday situations. 5. Vocabulary and Grammar Objectives: ☐ Acquire a basic vocabulary related to common topics, such as greetings, numbers, time, family, food, and everyday objects. ☐ Understand and use basic grammatical structures, including present simple, present continuous, simple past, and basic question forms. ☐ Recognize and use common prepositions, articles, and basic sentence structures. 6. Cultural Awareness Objectives: ☐ Develop an understanding of cultural customs and practices related to greetings, social norms, and everyday interactions in English-speaking countries. ☐ Gain exposure to cultural elements through reading or listening to texts about customs, traditions, and holidays.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the course, the students will be able to: 1. Listening and Speaking Skills: ☐ Understand and respond appropriately to basic questions and statements. ☐ Engage in simple conversations related to personal information, daily routines, and immediate surroundings. ☐ Follow simple instructions and directions. ☐ Develop basic pronunciation and intonation skills. 2. Reading Skills: ☐ Recognize and understand basic vocabulary words and phrases in simple texts. ☐ Comprehend and extract information from short, simple texts such as signs, notices, and labels. ☐ Understand basic sentence structures and common grammatical patterns. 3. Writing Skills: ☐ Write simple sentences and short paragraphs about personal information, experiences, and familiar topics. ☐ Fill out simple forms and write basic personal information. ☐ Write simple messages, notes, and emails related to everyday situations. 4. Vocabulary and Grammar: ☐ Acquire and use a basic range of vocabulary related to everyday topics, such as greetings, numbers, time, family, food, and common objects. ☐ Understand and use basic grammatical structures, including present simple, present continuous, simple past, and basic question forms. ☐ Recognize and use common prepositions, articles, and basic sentence structures. 5. Cultural Awareness: ☐ Develop an understanding of cultural customs and practices related to



	greetings, social norms, and everyday interactions in English-speaking countries. Gain exposure to cultural elements through reading or listening to texts about customs, traditions, and holidays.
Indicative Contents المحتويات الإرشادية	. Use simple forms of polite expressions to establish basic social contact and 1 to perform everyday functions including making requests and offers, conducting simple phone conversations, asking and telling time, giving simple directions, asking about price, ordering a meal, etc. . Use a narrow range of positive and negative adjectives to describe objects, 2 people and places. . Exchange information by forming and responding to simple questions. 2.3 . Produce simple sentences using the correct word order and punctuation 3 marks. . Use capital and lower case letters accurately in writing. 4 . Construct a short guided paragraph on a familiar topic concerning home, 5 family, friends and holidays. . Use the basic tenses including the present and past simple, and present 5 continuous correctly. . Use the basic auxiliary verbs (am/is/are/was/were/can) and a range of regular 6 and irregular verbs. . Demonstrate awareness of the essential grammatical features and functions 7 including questions and negatives, plural nouns, frequency adverbs, .possessives, pronouns and determiners

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	- Soars, John and Liz, (2011), New Headway Plus, Special Edition, Beginner Level, Oxford University Press	yes
Recommended Texts	- New Headway Plus provides an integrated skills course with each unit divided into grammar, vocabulary, skills work and everyday English segments	yes
Websites	Oxford University Press: The New Headway series is published by Oxford University Press. and search for "New Headway Plus, Special Edition, www.oup.com Visit their website at Beginner Level " or browse their English language teaching section for information on the course	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group	A – Excellent	امتياز	90 - 100	Outstanding Performance



(50 - 100)	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	greeting and introducing persons
Week 2	subject pronouns (he/ he/they) and possessive pronouns (his/ her...) jobs / negatives and questions
Week 3	subject pronouns(he/ he/they) and possessive pronouns (his/ her...) jobs / negatives and questions
Week 4	possessive pronouns(our / their)
Week 5	Present simple with (I / you / they / we) Sports / food / drinks and numbers -Present simple with (he / she) adverbs: always...sometimes Time and days of the week
Week 6	Present simple with (I / you / they / we) Sports / food / drinks and numbers -Present simple with (he / she) adverbs: always...sometimes Time and days of the week
Week 7	-Questions with present simple and object pronouns -there is / there are / preposition
Week 8	-Questions with present simple and object pronouns -there is / there are / preposition
Week 9	Elements of a Strong Biosecurity Program
Week 10	Past simple regular and irregular verbs Questions and negatives. -can / can't / adverbs / adjectives / noun
Week 11	Past simple regular and irregular verbs



	Questions and negatives. -can / can't / adverbs / adjectives / noun
Week 12	-some and any -present continuous Colors' and clothes -future plans
Week 13	-some and any -present continuous color's and clothes -future plans
Week 14	-some and any -present continuous colors' and clothes -future plans
Week 15	Final Exam

Learning Outcomes and Assessment Methods for "English Language" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: subject pronouns(he/ he/they) and possessive pronouns (his/ her...) jobs / negatives and questions	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
possessive Topic II: pronouns(our / their)	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: Present simple with (I / you / they / we)	3, 4, 5, 6 and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: - Elements of a Strong Biosecurity Program	3, 4, 5, 6,9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Past simple Topic V: regular and irregular verbs Questions and negatives. -can / can't / adverbs / adjectives / noun	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
-some and any Topic VI -present continuous colors' and clothes	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small	Seminars, quizzes, Major reports, Written Exams,



-future plans		Group Discussions, Scientific Films, and, Exploratory Work Teams.	Home work, oral exams.
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Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments & H.W	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.				
	Seminar				
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)		
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10



	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Computer		Module Delivery		
Module Type	Basic		☐ Theory ☒ Lecture ☐ Tutorial ☐ Practical ☐ Seminar ☒ Lab		
Module Code	Bio12011				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level		1	Semester		2
Department		Biology	College	College of science	
Module Leader	م. بتول عبد الهادي سلطان		E-mail	Batool@uoqasim.edu.iq	
Module Leader's Acad. Title		مدرس	Module Leader's Qualification		
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		3/9/2025	Version Number		1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	63	Structured SWL (h/w)	4
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	12	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)			75
الحمل الدراسي الكلي للطالب خلال الفصل			

**Relation with other Modules:-**

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	
Module Aims أهداف المادة الدراسية	1. This module sets out essential concepts and skills relating to the use of devices. 2. This module covers the key skills and main concepts relating to computers, devices, file creation and management, web browsing, and data security. 3. Help students to demonstrate the ability to use word processing 4. application to accomplish everyday tasks associated with creating, formatting, finishing small-sized word processing documents, such as letters and other everyday documents. 5. Help students to demonstrate the ability to use a power point application to accomplish tasks associated with creating, and formatting a presentation. 6. Help students to demonstrate the ability to use Excel application to accomplish a spreadsheet for tasks.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon successful completion of the course, a student will be able to: 1. Understand 1. key concepts relating to computers, devices and software. 2. Identify the main types of Integrated and External equipment 3. Understand concepts of online communities, communications and e mail 4. Adjust the main operating system settings and use built-in help features. 5. Know about the main concepts of file management and be able to efficiently organize files and folders. 6. Create a report by Ms. Word document and print an output. 7. Use University email to Collaborate inside and outside university and How to participate in video conference using meet 8. Create a presentation using power point application. 9. Create a spreadsheet using Excel application.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: - The general-purpose computer model: All types of computers follow the same structure and perform the basic operations (Input, Processing, Output, Storage and controlling) to converting raw input (data) to information. - Components of a computer Hardware: Each computer consists of Hardware and software. The Hardware includes input devices, output devices, system units, storage devices, and communication devices. - System Units (Internal & External components of system units): The internal component of the system units is consisting of (CPU, Motherboard, RAM, Ports, Hard



	disk ...). - Central Processing Unit: ALU, CU, and memory unit. Memory and its Types Cache Memory Primary memory –Comparison between RAM & ROM Secondary Storage - Ports and their types (Ports: is a connection points used as an interface between the computer and its peripheral devices (Serial ports, Parallel ports, PS/2, USB, VGA ...)). - Input Devices (Keyboard, Mouse, ...) - Output Devices (Printer, speaker, monitors, ...) - Software Types of Software ☐ Operating System (Windows, Linux, ...) ☐ Application Software & their types ☐ Programming Languages (Low, Assembly, High level). - Internet, Benefits, Browsing the Web (Web Browser) , Search the web (search engine) - Communication Technology: It plays an important role in almost every activity that we performed. The best examples of Communication technology includes: blogs, Web sites, live video, social media technology, and E-mail communication. - E-mail: free e-mail providers (G-mail, Yahoo-mail, ...), send and receive E mail operation, send e-mail with attachment, checking the e-mail boxes (inbox, send box, spam ...). - Security and keeping information safe: protect the information from unauthorized access and prevent use, modification, and destruction of this information. - Virus transmission ways to the computer: by e-mail, Downloading from the Internet, Pirated software, Exchange of diskettes, in attached e-mail, and in documents. - Protection against viruses: install good anti-viruses. - Antivirus, benefits and Types Introduction to windows - Desktop Components: (Icons, Start, task bar ...) - The start menu (its functions and properties)
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Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1. M. E. Vermaat and G. B. Shelly, Discovering Computers Fundamentals: Living in a Digital World, Shelly Cashman, 2011 Edition. 2. J. Lambert, J. Cox , and C. Frye, Microsoft Office Professional 2010 Step by Step , 1'st Edition, Microsoft Press, 2010, 152P.	yes



Recommended Texts	D. Hajek and C. Herrera, Introduction to Computers 2022 Edition, Independently published, May 19, 2022, 255P.	yes
Websites	1. https://www.tutorialspoint.com/computer_fundamentals/index.htm 2. https://www.slideshare.net/Jamjolojessa/types-ofapplicationsoftware?from_action=sav 3. https://edu.gcfglobal.org/en/excel2010/#	

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.				

COURSE SCHEDULE: -

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Computers – definition -The purposes of using a computer. -The general-purpose computer models. -The difference between Data and Information concepts. Introduction to windows - Desktop Components - The start menu (its functions and properties)
Week 2	The Components of a computer: Hardware - System Units (Internal & External components of system units) - Central Processing Unit (Features and components) Windows:



	- Task bar and its functions and property
Week 3	- Memory and its Types Cache Memory Primary memory –Comparison between RAM & ROM
Week 4	Secondary Storage Windows: - Files and Folders: All operations on files and folders (selection, creation, saving, moving and renaming.
Week 5	Ports and their types - Input Devices, - Output Devices Windows: - Delete Files. - Recycle bin. - Creating a Shortcut. - Desktop Icons. - The Windows Explorer Views. - Sort files.
Week 6	- Software Types of Software Operating System Application Software & their types Programming Languages Windows: -Customizing the desktop. -Change screen resolution. - Change Desktop Background
Week 7	- Communication Technology - E-mail Windows: - Print Screen - Cleaning Up the Disk - Defragmenting the Disk Quiz (1, 2, 3, 4, 5) -Windows only
Week 8	- Internet, Browsing the Web (Web Browser) , Search the web (search engine) - Security and keeping information safe -Virus transmission ways to the computer -Protection against viruses -Antivirus, benefits and Types
Week 9	Microsoft Word - Word Program Interface -Keyboard Shortcuts in Microsoft Word -The operations on Text
Week 10	Microsoft Word - Home Tab & it commands - Insert Tab (Pages & tables Groups) - Table Tools
Week 11	Microsoft Word - Insert Tab (Illustrations, Header & Footer, Text and Symbols Groups)



	- Page Layout, References, Review Tabs Quiz (Week 8, 9)
Week 12	Microsoft PowerPoint - PowerPoint program Interface. - File Menu - Home Tab & it commands - Operations on the Slides (duplicate, Delete, and Move)
Week 13	Microsoft PowerPoint - Insert Tab, Design Tab, Slide Show Tab and their commands - Transitions, and Animations Tabs
Week 14	Microsoft Excel - File Menu, Home Tab & it commands - Excel Worksheet Basics - Cell format
Week 15	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	General introduction to the program word.
Week 2	The main interface of the Word program
Week 3	Formatting texts and paragraphs in a program in Word
Week 4	Use Microsoft Word application processing 2010
Week 5	Main text word art
Week 6	Ways to create a blank presentation
Week 7	Design tab
Week 8	Working with slides
Week 9	Create series
Week 10	General settings for PowerPoint.
Week 11	Create a function
Week 12	Print settings



Week 13	Object management
Week 14	Data management
Week 15	Examination

Learning Outcomes and Assessment Methods for " Computer " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I The Components of a computer: Hardware	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
Topic II: Secondary Storage Windows:	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: Ports and their types	3, 4, 5, 6 and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: - - Types of Software	3, 4, 5, 6,9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic V: Communication Technology	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: Microsoft Word	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII: Microsoft Excel Microsoft PowerPoint	2, 4, 6, 7and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation:

Module Evaluation تقييم المادة الدراسية				
	Time/Nu	Weight (Marks)	Week Due	Relevant Learning



		Number			Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar				
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information				معلومات المادة الدراسية	
Module Title	Plant Groups		Module Delivery		
Module Type	Core		☐ Theory ☒ Lecture ☐ Tutorial ☐ Practical ☒ Seminar ☒ Lab		
Module Code	Bio23016				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		2	Semester		3
Department		Biology	College	College of science	
Module Leader	م.م. صفا ناظم مضمون		E-mail	safa.nathem@gmail.com	
Module Leader's Acad. Title		Assistant Lecturer	Module Leader's Qualification		Master
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		15/09/2025	Version Number		1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) +
Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	32	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	125		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules: -

Relation with other Modules



العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	
Module Aims أهداف المادة الدراسية	أ. التعرف على انواع المجاميع النباتية وتمييزها ب. ان يصبح الطالب قادر على التمييز بين الانواع المختلفة ومكونات خلايا كل نوع ج. امكانية تشخيص الاختلافات والتغيرات التي تحدث للمجاميع النباتية المختلفة د. التعرف على اهمية الطحالب ودورها في مختلف الجوانب الاقتصادية والطبية والصناعية
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- معرفة المصطلحات المستخدمة في علم النبات 2 - عزل وتشخيص الانواع المختلفة من النباتات حسب درجة التطور 3 - طرق تغذية مختلف المجاميع النباتية (الطحالب، السرخسيات، الحزازيات) ونموها وحاجاتها الغذائية 4- معرفة اصنافها 5- معرفة ودراسة تكاثرها الجنسي واللاجنسي وطرق انتاجها للسبورات 6- التعرف على ابرز الفروقات بين المجاميع الطحلبية المختلفة
Indicative Contents المحتويات الإرشادية	1 - امكانية تمييز الانواع المختلف للمجاميع النباتية 2 - امكانية الطلبة في عزل الطحالب من اماكن تواجدها 3 - اكتساب الطالب القدرة على تصنيف ومعرفة انواع المجاميع النباتية 4 - اكتساب الطالب القدرة على استخدام الأجهزة والمواد المختبرية لغرض العزل والتشخيص

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	- الطحالب والاركيكونات. 1990. بهرام خضر مولود ؛ نضال ادريس سليمان؛ ابراهيم توفيق البصام . - الطحالب في العراق بيئتها وتصنيفها. 2017. احمد عيدان الحسيني - كتاب الطحالب العملي. 2018. احمد محسن عذبي . جامعة البصرة	yes
Recommended Texts	- Allan, P. (1984). Introduction to the freshwater algae. The Richmond Publishing Co. Ltd. Orchard Road, Richmond, Surrey, England. - Al-Kandari, M.; Al-Yamani, F. and Al-Rifaie, k. (2009). Marine phytoplankton atlas of Kuwait's waters. Kuwait Institute for Scientific Research, P.O. Box, 2488, 13109, Kuwait.	yes



	- Robert, E. L. (2008). Phycology. Cambridge University Press. Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, Sao Paulo. - Edward, G. B. and David, c. s. (2010). Fresh water algae. The Atrium, South Gate. Chichester. West Sussex. PO198502.UK.	
Websites	https://www.britannica.com - Freshwater Algae of North America (Second dition)Ecology and Classification - Aquatic Ecology 2015, Pages 459-483 https://www.vcbio.science.ru.nl/en/virtuallessons/redalgae -	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Delivery Plan (Weekly. Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	تصنيف المجاميع النباتية
Week 2	طحالب الخضراء المزرقية
Week 3	طحالب الخضراء المزرقية
Week 4	طحالب الخضراء
Week 5	طحالب الخضراء
Week 6	طحالب البوغلينية
Week 7	طحالب الذهبية
Week 8	طحالب البنية



Week 9	الطحالب البايروية
Week 10	الطحالب الحمراء
Week 11	الحزازيات
Week 12	السرخسيات
Week 13	البذريات
Week 14	البذريات
Week 15	امتحان نهائي

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Microscope
Week 2	The prokaryotic Algae
Week 3	The prokaryotic Algae
Week 4	Eukaryote green algae
Week 5	Protista: chlorophyte <i>Ulothrix</i>
Week 6	<i>Spirogyra</i> Protista: chlorophyte <i>Cladophora</i>
Week 7	green algae (Charophyceae), dinoflagellate
Week 8	Rhodophyta (Red algae)
Week 9	<i>Rhodophyta (Red algae)</i>
Week 10	Phaeophyta (Brown Algae)
Week 11	Examination
Week 12	
Week 13	
Week 14	
Week 15	

Learning Outcomes and Assessment Methods for "Plant Groups" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: تصنيف المجاميع النباتية	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific	quizzes, Major reports, discussions during lectures,



		Films, Exploratory Work Teams.	Written Exams, oral exam.
Topic I: الطحالب الخضراء المزرقة	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: الطحالب البوغينية	3, 4, 5, 6 and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: - الطحالب الذهبية	3, 4, 5, 6,9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic V: الطحالب الحمراء	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: السرخسيات	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII: البذريات	2, 4, 6, 7and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)		
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Invertebrates			Module Delivery	
Module Type	Core			Theory ✓ Lecture ✓ Lab ☐ Tutorial ☐ Practical ✓ Seminar	
Module Code	Bio23015				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		2	Semester		3
Department		Biological	College	College of Science	
Module Leader	Sura Abdualkhaleq Ameen		E-mail	suraaawadh@science.uoqasim.edu.iq	
Module Leader's Acad. Title		lecturer	Module Leader's Qualification		Ph.D.
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		10/9/2025	Version Number		

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	32	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	125		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى



Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	This course aims to give the student basic information and knowledge in invertebrate science, as it deals with the study of invertebrate animals with their groups, their different taxonomic, structural and biological characteristics, and their diverse and different environments depending on the group. The course is also concerned with giving an overview of the life cycles of examples of invertebrate animals and their interaction with their environment. This course is also concerned with the laboratory study of invertebrate organisms in a way that complements and supports theoretical information.
Module Aims أهداف المادة الدراسية	This study aims to give a complete idea about invertebrates, their importance, harms, and benefits. As well as its classification, developmental relationships and phylum. As well as a detailed study of important invertebrates
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	After completing the course, the student will be able to: 1- Reviews the basic scientific concepts and knowledge in invertebrate science 2- Explains the taxonomic, morphological, structural and biological characteristics of invertebrate animals 3- Explains the relationship between the structural structure of invertebrate animals and the characteristics of the surrounding environment in which they inhabit 4- It explains the relationships that exist between invertebrate animals and between them and their environment, and explains the results of these relationships 5- Analyzes changes in the surrounding environment related to invertebrate animals based on a health scientific background 6- Learn about the morphological and taxonomic characteristics of invertebrate animals in the laboratory 7- He employs the scientific and laboratory skills and knowledge he acquired during his study of this science in positive interaction with the surrounding environment. 8- He raises awareness in his community about invertebrate animals and their impact on the environment and creatures around them
Indicative Contents المحتويات الإرشادية	Vidyarthi, R. D. (1984): Zoology. S. CHAND & COMPANY LTD. New Delhi

Learning and Teaching Resources



مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	محمد اسماعيل محمد, بشاي حلمي ميخائيل, العاصي يحيى السعيد, علي منى شرقاوي, حسن تغريد عبد الرحمن (2002) : اساسيات علم الحيوان. دار الفكر العربي. جمهورية مصر العربية	No
Recommended Texts	الحسيني احمد حماد, دميان اميل شنوده (1994): علم الحيوان. دار المعارف. جمهورية مصر العربية	No
Websites	https://www.microscopemaster.com/nematodes.html https://microbiologynotes.com/general-characteristics-and-classification-of-Arthropoda https://microbenotes.com/phylum-mollusca/	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE:-

Week	Hours	Topics Covered	Learning Outcomes
1-2	4	- Invertebrate groups, principles of taxonomy - large phylum's	1-2



3-4	4	– classification and the shape of protozoa – classification and Sarcodina	1-3
5-6	4	– Mastigophora and Ciliophora – Phylum Porifera	3-6
7-8	4	– A brief overview of Phylum Cnidaria – Flatworms	2-3
9-10	4	– Aschelminthes – Phylum Rotifera and classification	1-8
11-12	4	– Phylum Annelida – Phylum Arthropoda	1-7
13-14	4	– Phylum Gnathostomata – Phylum: Mollusca	
15	2	- phylum chordate and Evolutionary relationships	
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Phylum : Protozoa
Week 2	Lab 2: Classification and sarcodina
Week 3	Lab 3: Mastigophora and ciliophora
Week 4	Lab 4: Phylum : porifera
Week 5	Lab 5: Classification and shape of protozoa
Week 6	Lab 6: Brief overview of the Cnidaria phylum



Week 7	Lab 7: Examples of Cnidaria phylum
Week 8	Lab 8: Exam
Week 9	Lab 9: Flatworms
Week 10	Lab 10: Phylum : Annelida
Week 11	Lab 11: Phylum : Arthropoda
Week 12	Lab 12: Examples of Arthropoda
Week 13	Lab 13: Phylum : Gnathostomata
Week 14	Lab 14: Mollusca and Evolutionary relationships
Week 15	Lab 15: Phylum : Echinodermata

Learning Outcomes and Assessment Methods for " Invertebrates " Course.

Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
1	Interactive lecture, Small Group Discussions, Simulations and scientific demonstrations, Concept map	quizzes, Major reports, discussions during lectures, Written Exams, oral exam .
2	Brainstorming, Problem solving, Interactive lecture, Small Group Discussions, Self-learning	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .
3	Interactive lecture, Small Group Discussions, Simulations and scientific demonstrations, Concept map, Brainstorming, Problem solving,	Quizzes, discussions during lectures, Written Exams, Home work, oral exams .
4	Interactive lecture, Small Group Discussions, Simulations and scientific demonstrations, Concept map, Brainstorming, Problem solving, Cooperative learning	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .
5	Interactive lecture, Small Group Discussions, Simulations and scientific demonstrations, Concept map, Brainstorming, Problem solving, Cooperative learning	Seminars , quizzes, discussions during lectures, Written Exams, oral exams .
6	Practical application, self-learning, cooperative learning, and exchange of experiences among colleagues	Seminars , quizzes, Major reports, Written Exams, Home work, oral exams .
7-8	Interactive lecture, Small Group Discussions, Simulations and scientific demonstrations, Concept map, Brainstorming, Problem solving, Cooperative learning	quizzes, discussions during lectures. Written Exams, Home work.



Module Evaluation:-

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 3 and 5
	Assignments & H.W.	2	10% (10)	2, 12	LO # 1, 3 and 6
	Projects / Lab.	1	10% (10)	Continuous	
	Seminar	1	10% (10)		
	Field Visits Report	1	10% (10)	10	LO # 3, 6
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # All
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Microbiology 1			Module Delivery	
Module Type	Core			Theory ✓ Lecture ✓ Lab ☐ Tutorial ☐ Practical ✓ Seminar	
Module Code	Bio23118				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		2	Semester		3
Department		Biological	College	College of Science	
Module Leader	Zaman Salman Hamza		E-mail	zamansalman@science.uoqasim.edu.iq	
Module Leader’s Acad. Title		Assistant Professor	Module Leader’s Qualification		Ph.D.
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		14/9/2025	Version Number		

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	32	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	7.40
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Relation with other Modules:-

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى



Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	This course, which is considered an introduction to medical microbiology, aims to introduce students to the basic concepts of microbiology as well as provide the necessary information to understand the subject of basic biological sciences of pathogenic organisms (bacteria, fungi) and understand the mechanism of their spread and pathogenicity. In addition to theoretical information, the department is keen to provide students with laboratory techniques related to microbiology.
Module Aims أهداف المادة الدراسية	. Course Objectives The teaching of the Medical Microbiology course aims to provide a set of theoretical and practical concepts that ultimately lead to Introducing and understanding students of microbiology, its scientific division, and the most important common and rare microbial diseases As well as graduating students who are able to: - Work in the field of medical laboratories with theoretical and applied knowledge of microbiology - Obtain the skills required for the post-graduation plan (postgraduate studies). - Submit to external tests by local/regional/international bodies. Or treat it according to local, regional and international standards - Thinking and analytical skills that enable the laboratory diagnosis of bacterial disease-causing agents - Providing students with the skills to work in scientific and research laboratories and study the importance of different types of bacteria that infect humans and animals and their importance and danger - One of the most important goals that the Microbiology Department aspires to achieve in the future is to establish a research unit affiliated with the department to be a scientific and research source for other branches and to work on providing graduate students with information and scientific means to ensure raising the scientific level
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Course Outcomes, Teaching, Learning and Evaluation Methods A- Cognitive Objectives A 1- Obtaining basic information on microbiology. A 2- Providing a broad base of knowledge and understanding of microbiology. A 3- Enabling students to obtain knowledge and understanding of the methods used in dealing with microscopic pathogens such as bacteria and fungi and laboratory diagnostic methods in the local reality. A 4- The student uses the appropriate laboratory diagnostic methods for each disease A 5- Enabling students to obtain knowledge and understanding of the methods used in laboratory diagnosis at the international level A6- Introducing the student to laboratory work and applying theoretical information and linking it to the reality of laboratory work and how to apply diagnostic tests and



laboratory examination methods in their various forms.

B- Course specific skill objectives.

B 1 - Practice laboratory techniques and skills in the field of microbiology.

B 2 - Cultivation and diagnosis of common pathogenic microorganisms

B 3 - Handling laboratory materials, sterilization methods and controlling the spread of diseases

B 4- Identifying how to determine treatment, antibiotics and pathogenicity of microorganisms

B 5-Understanding the immune changes associated with infections and knowing the methods of diagnosis and analyzing their results

Teaching and learning methods

- ☐ Delivering detailed theoretical lectures according to the curriculum
- ☐ Providing students with the basics and additional topics related to the previous educational outcomes of skills, to solve scientific problems
- ☐ Asking students during practical laboratories to reach an examination and diagnosis of some bacterial and fungal microscopic causes.
- ☐ Diagnosing a group of pathogens by the academic staff
- ☐ - Student contribution by actual participation in tests
- ☐ Workshops and student groups Project Team.
- ☐ - E-learning.

Evaluation methods

- ☐ Daily exams with practical and scientific questions.
- ☐ Student participation individually or in groups in solving daily questions
- ☐ Retaking exams to increase the student's understanding and identify weaknesses to avoid them
- ☐ Participation grades for difficult competition questions between students orally.
- ☐ Grade homework assignments and reports.
- ☐ Participate in students presenting reports to their peers to increase behavioral and emotional skills
- ☐ Quarterly exams for the theoretical and practical curriculum in addition to the final exam

C- Emotional and value objectives

C 1- Enabling students to think and analyze topics related to the intellectual framework of microbiology

C 2- Enabling students to think and analyze topics related to the morphological and cultural characteristics of bacteria and fungi and the different ways of living and feeding.

C 3- Enabling students to think and analyze topics related to diseases resulting from bacterial and fungal pathogens.

C 4- Enabling students to think and analyze how to deal with laboratory samples and bacterial and fungal pathogens and methods of diagnosing them.

Teaching and learning methods

- ☐ - Providing students with the basics and topics related to the outputs of thinking and analysis.
- ☐ Forming a discussion group through theoretical and practical lectures to discuss the topic presented, which requires thinking, analysis and conclusion..
- ☐ Asking students a set of thinking questions during lectures such as (what, how,



	when, and why) specific topics ☐ Giving students homework that requires different scientific explanations. ☐ Teaching students how to build thinking and analysis methods. Evaluation methods ☐ Daily exams with practical and scientific questions. ☐ Participation grades for difficult competition questions between students. ☐ Setting grades for homework and reports assigned to them. ☐ Semester exams for the theoretical and practical curriculum in addition to the final exam D- General and transferable skills (other skills related to employability and personal development). D 1- Enabling students to write reports on topics related to microbiology. D 2- Enabling students to link the occurrence of diseases to health reality and diagnostic methods. D 3- Enabling students to pass medical tests in health laboratory courses. D 4- Enabling students to continue self-development after graduation by learning about the laboratory management mechanism D 5- Holding special seminars for students for the purpose of self-development of their personalities	
Indicative Contents المحتويات الإرشادية	The guiding content includes: ☐ Explain the scope of biology and the molecular basis of life (1). ☐ Describe life activities from a cellular point of view (2). ☐ Identify the main features of different groups of organisms (3). ☐ Explain the scope of tissues, bones and cartilage (8). ☐ Identify the basic processes of energy transfer and synthesis of intermediate or final products in living cells (4,5). ☐ Understand the basic concepts of genetics	
Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
1- Required textbooks	Medical Microbiology	No
2- Main references (sources)	Medical Microbiology\ Jawetz,E.:Melizik,J.L. WAWERREN LEVENSON and Adelberg ,E.A -Fungi Experimental methods in Biology\ J.W.Bennett	No
A- Recommended books and references (scientific journals, reports, etc.)	مكتبة الكلية والتي تحوي مصادر ذات العلاقة Pathogenesis of bacterial infection in animals\Carlton L.Gyles,John.FPrescott -Clinical veterinary microbiology\ P.J.Quinn	No



Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
1	2	Introduction to Microbiology	
2	2	Microbiology website in biology	
3	2	Microbial properties	
4	2	Types of microorganisms	
5	2	Bacteria	
6	2	Fungi	
7	2	Parasite	
8	2	Phages	
9	2	Bacterial groups and their characteristics	
10	2	Internal and external structure of bacteria	



11	2	Bacterial nutrition	
12	2	Bacterial growth and reproduction	
13	2	Control of microorganisms by chemical and physical methods	
14	2	Antibiotics	
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	ارشادات ومقدمه تعريفية
Week 2	أنواع المجاهر
Week 3	تعرف على الأدوات والاجهزة في المختبر
Week 4	التعقيم
Week 5	أنواع الأوساط الزراعية
Week 6	تحضير الأوساط الزراعية
Week 7	شكال وأنواع البكتريا
Week 8	التصبغ بالصبغة البسيطة
Week 9	صبغة كرام
Week 10	صبغة المقاومة للحامض
Week 11	صبغة السيورات
Week 12	صبغة المحفظة
Week 13	صبغة الاسواط
Week 14	الصبغة السالبة
Week 15	امتحان

Learning Outcomes and Assessment Methods for "Microbiology1" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I- Introduction to Microbiology , Microbiology		Report Writing, Field Visits, Theoretical Lectures, Scientific	quizzes, Major reports, discussions during lectures,



website in biology	1-6	Films, Exploratory Work Teams.	Written Exams, oral exam .
Topic II: - Microbial properties , Types of microorganisms	1-3	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .
Topic III: - Bacteria and Fungi	3-6	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams .
Topic IV: - Parasite and Phages	2-3	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .
Topic V: - Bacterial groups and their characteristics , Internal and external structure of bacteria	1-6	Theoretical Lectures, Small Group Discussions,	Seminars , quizzes, discussions during lectures, Written Exams, oral exams .
Topic VI: - Bacterial nutrition , Bacterial growth and reproduction	1-6	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars , quizzes, Major reports, Written Exams, Home work, oral exams .
Topic VII: - Control of microorganisms by chemical and physical methods , Antibiotics	2-3	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation:-

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 3 and 5
	Assignments & H.W.	2	10% (10)	2, 12	LO # 1, 3 and 6
	Projects / Lab.	1	10% (10)	Continuous	
	Seminar	1	10% (10)		
	Field Visits Report	1	10% (10)	10	LO # 3, 6
	Discussions During Lectures				



Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # All
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Biochemistry 1		Module Delivery		
Module Type	Core		Theory ✓Lecture ✓Lab ☐ Tutorial ☐ Practical ✓Seminar		
Module Code	Bio23117				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		2	Semester		3
Department		Biology	College	College of science	
Module Leader	أ.م.د. عقيل علاء حسين		E-mail	aqeelalaa@science.uoqasim.edu.iq	
Module Leader's Acad. Title		Associate Professor	Module Leader's Qualification		Ph.D.
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		7/9/2025	Version Number		1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) +
Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	32	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	125		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-



Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
COURSE DESCRIPTION:	Teaching the student how to identify chemical compounds and providing him with sufficient information that enables him to understand the vital activities that take place in the human body at the molecular level, applying them with practical lessons and demonstrating the methods used in diagnosing some diseases.
Module Aims أهداف المادة الدراسية	The main goal of study 1-Understand the basic chemical principles that govern complex biological systems. 2-Teaching the student how to identify and understand the vital activities that take place in the human body at the molecular level. 3- chemical tests used in the diagnosis of some diseases.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The intended subject specific learning outcomes. On successfully completing the module students will be able to: 1-The learning outcomes are designed to help learners understand the objectives of studying B.Sc. Biochemistry that is, to analyse, appreciate, understand the basic concepts of chemical reactions that occur in living systems, which enable them to understand the various perspectives of applied sciences that benefit the mankind. 2-To understand the concepts of preparation of buffers. To estimate biomolecules such as glucose , proteins,cholesterol in clinical samples. To isolate of lipids . 3-Demonstrate an understanding of the principles of the protein structure/folding and an ability to explain their functions in general. -Describe the key principles of static enzyme Biochemistry, enzyme 5 classification and basic principles of enzyme functioning. -Explain the basic principles of the nucleic acid structure and their disparate 5 cellular roles and its practical applications. -Explain the principles of carbohydrate Biochemistry and the biological 6 functions of the carbohydrates. -Demonstrate a knowledge of the principles of lipid classification, structure 7 and functions. -Understand basic mechanisms of static integration of biologically active 8



	compounds into biological membranes. - Demonstrate an ability to link this knowledge to everyday activities in the 9 bioscience workplace. - To become aware with the variations in the levels of triglycerides and 10 lipoproteins and their relationship with various diseases. To get acquainted with the role of enzymes in diagnosis of various diseases. - To estimate biomolecules such as glucose , proteins, cholesterol in clinical 11 samples, and exposure to the mechanisms of causation of diseases of liver and kidney. - Understand : Classification and biological role. Fatty acids – Nomenclature of 21 saturated and unsaturated fatty acids. Physiological properties of fatty acids
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Harper's Book, Harper's Book of Biochemistry, Lippincott, eighth edition of Biochemistry .

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	- Harper's Book, Harper's Book of Biochemistry	yes
Recommended Texts	- Lippincott, 8 th edition of Biochemistry - Principle of Biochemistry by lehniger.	yes
Websites	https://www.ugc.gov.in/pdfnews/1045687_Biochemistry.pdf	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Topic I: Introduction to Carbohydrates			
1-3	6	• Definition and classification of carbohydrates • Monosaccharides, disaccharides and polysaccharides • Structural features and functional groups of carbohydrates • Stereochemistry of carbohydrates • Ring structures and anomalies • Glycosidic bonds • Definition and classification of polysaccharides • Structural diversity and complexity of polysaccharide molecules • The importance of polysaccharides in biological systems and industrial applications	➤ Introduction to carbohydrates ➤ Structure of carbohydrates and their properties ➤ Introduction to polysaccharides
Topic II: - Amino Acids			
4-7	4	• Definition and classification of amino acids • Structural features and properties of amino acids • The importance of amino acids in biological systems • Primary, secondary, tertiary and quaternary structures of proteins • Stereochemistry of amino acids: chirality and optical activity • Amino acid residues in peptide bonds and protein conformation	• Introduction to amino acids • Amino acid structure and stereochemistry
Topic III: - Peptide and Protein			
7-13	8	• Definition and classification of peptides and proteins • Peptide bond formation and peptide synthesis • Structural hierarchy of proteins: primary structure • Secondary, tertiary and quaternary structure • Peptide analysis techniques: mass spectrometry, chromatography, etc. • Peptide sequencing methods: Edman lysis, mass spectrometry, etc.	• Introduction to peptides and proteins • Amino acid and peptide bond formation • Protein structure and folding • Protein structure and folding • Peptide analysis and sequencing



		• Applications of peptide analysis in proteins and biomarker discovery • Chemical and enzymatic methods for cleaving and modifying peptide bonds • Chemical and enzymatic methods for peptide modification	
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Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to clinical biochemistry laboratory & safety measures.
Week 2	Lab 2: Spectrophotometry
Week 3	Lab 3: Estimation of serum amylase
Week 4	Lab 4 Fasting & Postprandial blood sugar
Week 5	Lab 5: Estimation of serum Cholesterol (Total & HDL).
Week 6	Lab 6: Estimation of serum triglycerides.
Week 7	Lab 7: Estimation of serum total protein.
Week 8	Examination
Week 9	
Week 10	

Learning Outcomes and Assessment Methods for "Biochemistry 1" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Introduction to Carbohydrates	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
Topic II: - Amino Acids	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: - Amino Acids	3, 4, 5, 6 and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: - Peptide and Protein	3, 4, 5, 6, 9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group	Seminars, Major reports, discussions during lectures.



		Discussions, and Scientific Films.	Written Exams, oral exams.
Topic V Protein structure and folding	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: Protein structure and folding	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII: Peptide analysis and sequencing	2, 4, 6, 7and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation:-

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments & H.W.	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)	Continuous	
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Plant Anatomy			Module Delivery	
Module Type	Core			☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code	Bio23214				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		2	Semester		3
Department		Biology	College	College of science	
Module Leader	أ.م.د. مهند محمد صاحب		E-mail	mohanad.sahib@science.uoqasim.edu.iq	
Module Leader's Acad. Title		assistant professor	Module Leader's Qualification		PhD
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		9/9/2025	Version Number		1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) +
Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	32	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	125		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

Relation with other Modules



العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
COURSE DESCRIPTION:	Parts of plant internal structure for root, shoot & leaf & structural tissue for everyone & theories application on the growth of plants and recognizing how the plant increase in size by secondary growth
Module Aims أهداف المادة الدراسية	The main goal of study Explaining the basic principles of plant anatomy tests Explaining the interventions that may occur in different parts of the plant Also explaining the mechanics of the tests and how to handle various types of plant specimens Understanding the importance of the plant and the benefits of dissecting and describing the functions of different tissues Also understanding the interrelationship between plant tissues and their interaction with other forms of life
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Providing the student with sufficient information to gain experience in dealing with life sciences and laboratory techniques. Gaining experience in knowledge of all laboratory equipment and modern techniques. Gaining sufficient information to keep pace with and study modern sciences. Developing the student's ability to recall what they have learned 1- Level One: Developing knowledge about the different parts of the plant and the ways in which they are related, whether by function or location. 2- Level Two: Improving the level of comprehension, developing the ability to interpret, predict, and infer. 3- Level Three: Developing application skills. 4- Level Four: Providing the student with the ability to analyze. 5- Level Five: Developing the student's ability to integrate ideas and information at the level of synthesis, which is the opposite of analysis. Level Six: Evaluation: Developing the student's ability to judge the value of the material learned.
Indicative Contents المحتويات الإرشادية	Application in general fields and research centers. · Application in environmental centers. · Teaching students oral and written communication skills. · Using modern technological tools such as computers, the internet, and specialized scientific programs. Preparing reports, tables, figures, and presentations. Encouraging students to work as part of a team.



Developing students' abilities to make optimal use of time (time management).

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	- Basics of plant anatomy, Alany, B. O. & Salih, K. N. 1988. Third Ad.	yes
Recommended Texts	- Plant anatomy, Richard Crang & Anrey Vassilyev, 2003.	yes
Websites	-	-

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي النظري



	Material Covered
Week 1	Introduction of plant
Week 2	Cell plant
Week 3	Cell plant
Week 4	Cell plant
Week 5	Detials study
Week 6	Collenchya& Sechlyma
Week 7	Phloem
Week 8	Xylem
Week 9	Tissue& Secretion structures
Week 10	Paranchyma
Week 11	Study of growth
Week 12	Internal structure
Week 13	Internal structure
Week 14	Internal structure
Week 15	Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Microscope
Week 2	Rules to be followed in the laboratory
Week 3	Steps for preparing microscopic slides
Week 4	killing and fixation
Week 5	Fixation methods
Week 6	Washing, Preservation
Week 7	Dehydration
Week 8	Clearing
Week 9	Embedding
Week 10	Section Making



Week 11	Microtomes
Week 12	Sectioning
Week 13	Staining
Week 14	Mordant
Week 15	Exam

Learning Outcomes and Assessment Methods for " Plant Anatomy " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Introduction of plant	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
Topic II Cell plant	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: Details study	3, 4, 5, 6 and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: - Phloem	3, 4, 5, 6,9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic V: Xylem	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: paranchyma	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII: Study of growth	2, 4, 6, 7and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation: -



Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)		
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information							معلومات المادة الدراسية	
Module Title	General Entomology				Module Delivery			
Module Type	Core				Theory ✓ Lecture ✓ Lab ☐ Tutorial ☐ Practical ✓ Seminar			
Module Code	Bio23113							
ECTS Credits	5							
SWL (hr/sem)	125							
Module Level		1		Semester		1		
Department		Biology		College	College of Science			
Module Leader	Riyad Ali Okaily			E-mail	riyad_okaily@environ.uoqasim.edu.iq			
Module Leader's Acad. Title		Associate Professor		Module Leader's Qualification		Ph.D.		
Module Tutor	Name (if available)			e-mail	E-mail			
Peer Reviewer Name		Name		e-mail	E-mail			
Scientific Committee Approval Date		8/9/2025		Version Number				

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) +
Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	32	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	125		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

Relation with other Modules	العلاقة مع المواد الدراسية الأخرى
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Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	1- Enabling students to know the position of insects in the animal world 2- Enable students to know the external anatomy of insects 3- Enabling students to know the factors that help insects spread 4- Enabling students to know the harm caused by insects as well as the benefits they provide to humans 5- Enabling students to know the methods of reproduction and the conditions that help them reproduce for the purpose of controlling them and reducing their numbers.
Module Aims أهداف المادة الدراسية	-Cognitive objectives - Enable students to know the mouth parts of insects - Enabling students to know the mechanics of aviation - Enabling students to know the types of reproduction methods, breeding dates, and conditions that help reproduction - Enabling students to know the importance and functionality of the various body systems
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Planning for personal development . 2. Leadership skills . 3. Adopting the method of delivering an optional lecture by the student. 4. Developing the ability to link topics and conclusions
Indicative Contents المحتويات الإرشادية	1- Book of general entomology. 2- book of medical and veterinary insects, Dr. Jalil Abu Al-Hob 3- American Entomology .

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- Book of general entomology. 2- book of medical and veterinary insects, Dr. Jalil Abu Al-Hob	No



Recommended Texts		No
Websites		-----

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Topic I:			
1-2	4	Origin and Distribution of the Insectes	4
Topic II: -			
3-4	4	Body Wall and Exo skeleton Intégument Structure	4
Topic III: -			
5-6	4	Head Capsule Principles Structures and areas Antennal	4
Topic IV: -			
7-9	6	Mouth components, mouth mutations in insects	4
Topic V: -			
10	2	Alary Wing Thorax. General Structure of Alary Wing Thorax .	4
Topic VI: -			



11	2	Basal Articulation of Legs. Origin of Wings and Structure Mechanism of Flight	4
12	2	Abdominal Appendage Non- reproductive Appendages)	
13	2	Ovipositeur Genitalia Sound – Producing Organs	
Topic VII: -			
14-15	4	Types of reproduction methods reproduction dates, and conditions that help reproduction	4
Final Exam			

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Methods of collection insectes
Week 2	Body Wall and Exo skeleton
Week 3	Head Capsule Principles Structures and areas Antennal
Week 4	.Mouth components, mouth mutations in insects
Week 5	Basal Articulation of Legs. Origin of Wings and Structure Mechanism of Flight
Week 6	Abdominal Appendage Non- reproductive Appendages
Week 7	Ovipositeur Male Genitalia

Learning Outcomes and Assessment Methods for " General Entomology "
Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
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Topic I Origin and Distribution of the Insectes	1-6	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam .
Topic II: - Body Wall and Exo skeleton	1-3	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .
Topic III: - Head Capsule	3-6	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams .
Topic IV: Mouth components, mouth mutations in insects	2-3	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .
Topic V: - Basal Articulation of Legs.	1-6	Theoretical Lectures, Small Group Discussions,	Seminars , quizzes, discussions during lectures, Written Exams, oral exams .
Topic VI: - Abdominal Appendage	1-6	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars , quizzes, Major reports, Written Exams, Home work, oral exams .
Topic VII: - Types of reproduction methods reproduction dates, and	2-3	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation:-

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments & H.W.	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	10% (10)	Continuous	
	Seminar	1	10% (10)	14	
	Field Visits Report				
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2hr	10% (10)	8	LO # 1-15



	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)	Total assessment	100% (100 Marks)

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Plant Taxonomy		Module Delivery		
Module Type	Core		☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☒ Seminar		
Module Code	BIO-222				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		2	Semester		4
Department		Biology	College	College of science	
Module Leader	م.م احمد علي حسين		E-mail	ahmedali@science.uoqasim.edu.iq	
Module Leader's Acad. Title		Ass.Lec	Module Leader's Qualification		Ms,c
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		9/9/2025	Version Number	1.0	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	32	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	125		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى



Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	Teaching students the basics of plant classification, methods of diagnosing plants, naming them (giving a scientific name) and classifying them in their own taxonomic ranks according to a reliable taxonomic system that reflects their evolutionary relationships.
Module Aims أهداف المادة الدراسية	The main goal of study 1. Learn the terms related to each of the roots, stems, leaves, flowers, inflorescences and fruits. 2. Study of floral equation and symbols. 3. Study the characteristics of different plant families. 4. Study the taxonomic key.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On successfully completing outcomes. learning specific subject intended The the module students will be able to: 1. Conservation and study of the phenotypical characteristics of different plants. 2. Study the characteristics of different families. 3. Learn about the steps of the taxonomic keys. 4. Study of different dry and fresh samples of plants. 5. Learn to identify the botanical family of unidentified samples. 6. Use of dry and fresh plant samples. 7. Learn about different plant parts. 8. Learn about the use of the classification key. 9. Learn how to write floral equations. 10. Identify the main divisions of plant groups with examples of some families, genera and species. 11. Know the descriptive terms for the phenotypic parts of the plant. 12. Know the description of families and the most important genera and species. 13. Knowledge of botanical nomenclature.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. • Flora of Iraq vol. 1-9 • Ecology and Plant of basrah (2016). • Plant taxonomy



Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	- Flora of Iraq vol. 1-9 - Ecology and Plant of basrah (2016). - Plant taxonomy	yes
Recommended Texts	- Flora of turkey - Flora of Iranica.	yes
Websites	https://www.kew.org	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
Topic I: Plant taxonomy			
1-2	6	- Introduction to Plant taxonomy - The purpose and importance of Plant taxonomy.	1, 2, 3, 6, and 9



		- Herbarium - The relationship of taxonomy with other sciences	
Topic II: - plant evolutionary systems			
3-4	6	- First era - The second era - The third era - Fourth era	3, 4, 5, and 9
Topic III: - plant organs			
5-6	6	- Phytography and terminology of Vegetative organs - Root system - stems	3, 4, 5, and 9
Topic IV: - Vegetative characters			
7-9	9	- Buds - Classification of buds - leaf parts - phyllotaxy - leaf complexity	1, 3, 4, 8 and 8
2 Topic V: Vegetative characters			
10	3	- leaf blade shapes - blade apex - blade base - Leaf margin - Leaf Venation - Leaf Modification - Leaf Duration	3, 8, and 9
Topic VI: - Reproductive Characters			
11	3	- Floral Parts Arrangement - Floral Parts Arrangement - Number of Whorls - Perianth - Flower symmetry	3, 8,9 and 10
12	3	Androecium - Anther - Anther Dehiscence - Filament - Heterostemony - Stamens Fertility	



		– Insertion of Stamens	
13	3	Gynoecium – Types of Gynoecium – Stigma – Position of style – Ovary – Placentation – Position of ovary	
Topic VII; Inflorescences			
14-15	18	– Racemose, Indefinite or Indeterminate – Cymose , Definite , Determinate Inf – Special Inflorescences – Floral formula – Pollen Grains and Pollination	13 and 12, 11
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to plant taxonomy.
Week 2	Lab 2: General conventions
Week 3	Lab 3: Terminology for vegetative organs
Week 4	Lab 4 Terminology for the reproductive organs
Week 5	Lab 5: Collection of plant samples and methods of diagnosis
Week 6	Lab 6: preparation of plant herbarium.
Week 7	Lab 7: Drying and pressing.
Week 8	Lab 8: Flower structure
Week 9	Lab 9: perianth
Week 10	Lab 10: Aestivation
Week 11	Lab 11: inflorescence.
Week 12	Lab 12: Floral Diagram.
Week 13	Lab 13: Floral FORMULA.



Week 14	Lab 14: Study of two species of flowering plants
Week 15	Lab 15: Examination

Learning Outcomes and Assessment Methods for " Plant Taxonomy " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Plant taxonomy	1, 2, 3, 6, and 9	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
Topic II: - plant evolutionary systems	3, 4, 5, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: - plant organs	3, 4, 5, and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: - Vegetative characters	1, 3, 4, 8 and 8	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic V: Vegetative 2 characters	3, 8, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: - Reproductive Characters	3, 8,9 and 10	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII; Inflorescences	13and 12, 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation:-

Module Evaluation				
تقييم المادة الدراسية				
	Time/Nu	Weight (Marks)	Week Due	Relevant Learning Outcome



		Number			
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments & H.W.	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)		
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information						
معلومات المادة الدراسية						
Module Title	Microbiology 2			Module Delivery		
Module Type	Core			Theory ✓ Lecture ✓ Lab ☐ Tutorial ☐ Practical ✓ Seminar		
Module Code	BIO-224					
ECTS Credits	6					
SWL (hr/sem)	150					
Module Level		2	Semester		4	
Department		Biological	College	College of Science		
Module Leader	Zaman Salman Hamza		E-mail	zamansalman@science.uoqasim.edu.iq		
Module Leader's Acad. Title		Assistant Professor	Module Leader's Qualification		Ph.D.	
Module Tutor	Name (if available)		e-mail	E-mail		
Peer Reviewer Name		Name	e-mail	E-mail		
Scientific Committee Approval Date		12/9/2025	Version Number			

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) +
Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعياً	
Unstructured SWL (h/sem)	57	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعياً	
Total SWL (h/sem)	150		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى



Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	This course, which is considered an introduction to medical microbiology, aims to introduce students to the basic concepts of microbiology as well as provide the necessary information to understand the subject of basic biological sciences of pathogenic organisms (bacteria, fungi) and understand the mechanism of their spread and pathogenicity. In addition to theoretical information, the department is keen to provide students with laboratory techniques related to microbiology.
Module Aims أهداف المادة الدراسية	. Course Objectives The teaching of the Medical Microbiology course aims to provide a set of theoretical and practical concepts that ultimately lead to Introducing and understanding students of microbiology, its scientific division, and the most important common and rare microbial diseases As well as graduating students who are able to: - Work in the field of medical laboratories with theoretical and applied knowledge of microbiology - Obtain the skills required for the post-graduation plan (postgraduate studies). - Submit to external tests by local/regional/international bodies. Or treat it according to local, regional and international standards - Thinking and analytical skills that enable the laboratory diagnosis of bacterial disease-causing agents - Providing students with the skills to work in scientific and research laboratories and study the importance of different types of bacteria that infect humans and animals and their importance and danger - One of the most important goals that the Microbiology Department aspires to achieve in the future is to establish a research unit affiliated with the department to be a scientific and research source for other branches and to work on providing graduate students with information and scientific means to ensure raising the scientific level
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Course Outcomes, Teaching, Learning and Evaluation Methods A- Cognitive Objectives 1- Obtaining basic information on microbiology. A 2- Providing a broad base of knowledge and understanding of microbiology. A 3- Enabling students to obtain knowledge and understanding of the methods used in A dealing with microscopic pathogens such as bacteria and fungi and laboratory diagnostic methods in the local reality. 4- The student uses the appropriate laboratory diagnostic methods for each disease A 5- Enabling students to obtain knowledge and understanding of the methods used in A laboratory diagnosis at the international level - A6- Introducing the student to laboratory work and applying theoretical information and linking it to the reality of laboratory work and how to apply diagnostic tests and



laboratory examination methods in their various forms.

B- Course specific skill objectives.

B 1 - Practice laboratory techniques and skills in the field of microbiology.

B 2 - Cultivation and diagnosis of common pathogenic microorganisms

B 3 - Handling laboratory materials, sterilization methods and controlling the spread of diseases

B 4- Identifying how to determine treatment, antibiotics and pathogenicity of microorganisms

B 5-Understanding the immune changes associated with infections and knowing the methods of diagnosis and analyzing their results

Teaching and learning methods

- ☐ Delivering detailed theoretical lectures according to the curriculum
- ☐ Providing students with the basics and additional topics related to the previous educational outcomes of skills, to solve scientific problems
- ☐ Asking students during practical laboratories to reach an examination and diagnosis of some bacterial and fungal microscopic causes.
 - ☐ Diagnosing a group of pathogens by the academic staff
 - ☐ - Student contribution by actual participation in tests
 - ☐ Workshops and student groups Project Team.
 - ☐ - E-learning.

Evaluation methods

- ☐ Daily exams with practical and scientific questions.
- ☐ Student participation individually or in groups in solving daily questions
- ☐ Retaking exams to increase the student's understanding and identify weaknesses to avoid them
 - ☐ Participation grades for difficult competition questions between students orally.
 - ☐ Grade homework assignments and reports.
- ☐ Participate in students presenting reports to their peers to increase behavioral and emotional skills
- ☐ Quarterly exams for the theoretical and practical curriculum in addition to the final exam

C- Emotional and value objectives

C 1- Enabling students to think and analyze topics related to the intellectual framework of microbiology

C 2- Enabling students to think and analyze topics related to the morphological and cultural characteristics of bacteria and fungi and the different ways of living and feeding.

C 3- Enabling students to think and analyze topics related to diseases resulting from bacterial and fungal pathogens.

C 4- Enabling students to think and analyze how to deal with laboratory samples and bacterial and fungal pathogens and methods of diagnosing them.



	Teaching and learning methods ☐ - Providing students with the basics and topics related to the outputs of thinking and analysis. ☐ Forming a discussion group through theoretical and practical lectures to discuss the topic presented, which requires thinking, analysis and conclusion.. ☐ Asking students a set of thinking questions during lectures such as (what, how, when, and why) specific topics ☐ Giving students homework that requires different scientific explanations. ☐ Teaching students how to build thinking and analysis methods. Evaluation methods ☐ Daily exams with practical and scientific questions. ☐ Participation grades for difficult competition questions between students. ☐ Setting grades for homework and reports assigned to them. ☐ Semester exams for the theoretical and practical curriculum in addition to the final exam D- General and transferable skills (other skills related to employability and personal development). D 1- Enabling students to write reports on topics related to microbiology. D 2- Enabling students to link the occurrence of diseases to health reality and diagnostic methods. D 3- Enabling students to pass medical tests in health laboratory courses. D 4- Enabling students to continue self-development after graduation by learning about the laboratory management mechanism D 5- Holding special seminars for students for the purpose of self-development of their personalities
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
1- Required textbooks	Medical Microbiology	No
2- Main references (sources)	Medical Microbiology\ Jawetz,E.:Melizik,J.L. WAWERREN LEVENSON and Adelberg ,E.A Fungi Experimental methods in Biology\ - J.W.Bennett	No
A- Recommended books and references (scientific journals, reports, etc.)	مكتبة الكلية والتي تحوي مصادر ذات العلاقة Pathogenesis of bacterial infection in animals\Carlton L.Gyles,John.FPrescott -Clinical veterinary	No



microbiology\ P.J.Quinn

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
1	2	Immunity	
2	2	Bacterial Genetics	
3	2	Bacterial pathogenesis	
4	2	Micro Flora	
5	2	Antibiotics	
6	2	Food Microbiology	
7	2	Industrial Microbiology	
8	2	Biotechnology	



9	2	Soil Microbiology	
10	2	Water Microbiology	
Final Exam			

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	تعداد البكتيريا طريقة bread
Week 2	طريقة شريحة العد المجهرى
Week 3	طريقة تخفيف
Week 4	طريقة صب الاطباق
Week 5	طرق الزرع التخفيف والتلقيح
Week 6	الطعن والنشر
Week 7	المسح وصب الاطباق
Week 8	انواع المستعمرات
Week 9	الفطريات والخمائر
Week 10	الاختبارات البيوكيميائية
Week 11	الاختبارات البيوكيميائية
Week 12	الاختبارات البيوكيميائية
Week 13	تأثير المواد الكيميائية والمطهرات في نمو البكتيريا
Week 14	دراسة النتائج وكتابة تقرير
Week 15	امتحان

Learning Outcomes and Assessment Methods for "Microbiology2" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I, Immunity , Bacterial Genetics	1-6	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam .
Topic II: - Bacterial Pathogenesis , Micro flora	1-3	Problem Based Learning, Report Writing, Field Visits, Scientific	Seminars , Major reports, discussions during lectures.



		Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Written Exams, oral exams.
Topic III: - Antibiotics	3-6	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: - Food Microbiology , Industrial Microbiology	1-6	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars , Major reports, discussions during lectures. Written Exams, oral exams.
Topic V: - Biotechnology	1-3	Theoretical Lectures, Small Group Discussions,	Seminars , quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: - Soil Microbiology	1-6	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars , quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII: - Air Microbiology	2-3	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 3 and 5
	Assignments & H.W.	2	10% (10)	2, 12	LO # 1, 3 and 6
	Projects / Lab.	1	10% (10)	Continuous	
	Seminar	1	10% (10)	Continuous	
	Field Visits Report	1	10% (10)	10	LO # 3, 6
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # All
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information						
معلومات المادة الدراسية						
Module Title	Biochemistry 2			Module Delivery		
Module Type	Core			☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☒ Seminar		
Module Code	BIO-223					
ECTS Credits	5					
SWL (hr/sem)	125					
Module Level		2		Semester		4
Department		Biology		College	College of science	
Module Leader	أ.م.د. عقيل علاء حسين			E-mail	aqeelalaa@science.uoqasim.edu.iq	
Module Leader's Acad. Title		Associate Professor		Module Leader's Qualification		Ph.D.
Module Tutor	Name (if available)			e-mail	E-mail	
Peer Reviewer Name		Name		e-mail	E-mail	
Scientific Committee Approval Date		7/9/2025		Version Number		1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) +
Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	32	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	125		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى



Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	Biochemistry is concerned with the study of the chemical processes of living organisms and includes describing the structure and function of biomolecules such as carbohydrates, lipids, fatty acids, amino acids, proteins, enzymes, and nucleic acids, and studying the chemical and physical properties and functions of these biomolecules.
Module Aims أهداف المادة الدراسية	• Get a general introduction to biochemistry in relation to biomolecules. • Explore the different types of carbohydrates and understand their classifications. • Classification of amino acids according to their properties, distinguishing the side chains of amino acids and the structure of proteins. • Defining the basic and complex structures of proteins, classifying their types, and understanding the basic principles of protein purification or detection methods. • Classify enzymes according to the rules of the Enzyme Committee, distinguish the concept of enzyme function, understand the catalytic roles of enzymes, and explain the mechanisms of enzyme regulation. • Classify fats and fatty acids, identify their physical and chemical properties, and explain their biochemical functions. • Classification and clarification of nucleic acids and their chemical and functional properties.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The intended subject specific learning outcomes. On successfully completing the module students will be able to: 1-The learning outcomes are designed to help learners understand the objectives of studying B.Sc. Biochemistry that is, to analyse, appreciate, understand the basic concepts of chemical reactions that occur in living systems, which enable them to understand the various perspectives of applied sciences that benefit the mankind. 2-To understand the concepts of preparation of buffers. To estimate biomolecules such as glucose , proteins,cholesterol in clinical samples. To isolate of lipids . 3-Demonstrate an understanding of the principles of the protein structure/folding and an ability to explain their functions in general. -Describe the key principles of static enzyme Biochemistry, enzyme 5 classification and basic principles of enzyme functioning. -Explain the basic principles of the nucleic acid structure and their disparate 5 cellular roles and its practical applications. -Explain the principles of carbohydrate Biochemistry and the biological 6



	functions of the carbohydrates. -Demonstrate a knowledge of the principles of lipid classification, structure 7 and functions. -Understand basic mechanisms of static integration of biologically active 8 compounds into biological membranes. -Demonstrate an ability to link this knowledge to everyday activities in the 9 bioscience workplace. - To become aware with the variations in the levels of triglycerides and 10 lipoproteins and their relationship with various diseases. To get acquainted with the role of enzymes in diagnosis of various diseases. - To estimate biomolecules such as glucose , proteins,cholesterol in clinical 11 samples, and exposure to the mechanisms of causation of diseases of liver and kidney. - Understand : Classification and biological role. Fatty acids – Nomenclature of 21 saturated and unsaturated fatty acids. Physiological properties of fatty acids
Indicative Contents المحتويات الإرشادية	. Preparing class and homework assignments Preparing reports on practical experiences • Conduct daily and quarterly examinations • •Conducting final exams

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	- The lectures made by the lecturer - Voet D. & Voet, J. (2011). Biochemistry. 4th Ed. WILEY. USA. - Nelson, D. & Cox, M. (2017). Lehninger Principles of Biochemistry. 7th Ed. Freeman, W. H. & Company. USA. - Campbell, M. Farrell, S. & McDougal, O. (2018). Biochemistry. 9th Ed. Cengage Learning. USA.	yes
Recommended Texts	Special requirements (including, for example, workshops, periodicals, software, and websites)	yes
Websites		-

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors



	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
Topic V: - Fatty acids and Lipids			
1-10	6	•Definition and classification of fats •Structural diversity of lipids: fatty acids, triglycerides, phospholipids, etc. •The importance of fats in cellular structure and function •Fatty acid structure: saturated, monounsaturated, and polyunsaturated fatty acids •Systematic and common names for fatty acids •Fatty acid chains in biological lipids: length, saturation and trans-cis isomerism •Fatty acid deficiency •Transport of fatty acids in the human body •Functions of fatty acids •Classification of Lipids •Fatty acids •Glycerolipid •Glycerolphospholipid •Sphingolipids •Steroid •Brinol •Lipopolysaccharides •Polyketides • Vitamins	➤ Introduction to fats and fatty acids ➤ Fatty acid structure and nomenclature ➤ The importance of fatty acids ➤ Types of fats
		Topic VI: - Vitamins	Introduction to Vitamins
11-15	2	• Water-soluble vitamins: Water-soluble vitamins include B complex vitamins (B1, B2, B3, B5, B6, B7, B9, B12) and vitamin C (ascorbic acid). • Fat-soluble vitamins: Fat-soluble vitamins include vitamins A, D, E, and K.	



Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 8: Estimation of serum of albumin
Week 2	Lab 9: Estimation of serum of urea (enzymatic).
Week 3	Lab 10: Estimation of serum uric acid.
Week 4	Lab 11: Estimation of serum total bilirubin and direct bilirubin.
Week 5	Lab 12: Estimation of serum sodium and potassium.
Week 6	iron., Lab 13: Estimation of serum calcium
Week 7	Lab 14: Estimation of serum Phosphorous
Week 8	Lab 15: Examination
Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	

Learning Outcomes and Assessment Methods for "Biochemistry2" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
– Topic I: Definition and classification of fats	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
– Topic II: Fatty acid structure: saturated, monounsaturated	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: saturation and trans-cis isomerism	3, 4, 5, 6 and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.



Topic IV: - Glycerolipid	3, 4, 5, 6,9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic V: Glycerolphospholipid	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: Polyketides	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII: Water-soluble vitamins	2, 4, 6, 7and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation:-

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)		
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Systematic Entomology			Module Delivery	
Module Type	Core			☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code	BIO-221				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		2		Semester	
Department		Biology		College of Science	
Module Leader	Riyad Ali Okaily		E-mail	riyad_okaily@environ.uoqasim.edu.iq	
Module Leader's Acad. Title		Associate Professor		Module Leader's Qualification	
				Ph.D.	
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name		E-mail	
Scientific Committee Approval Date		3/9/2025		Version Number	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	93	Structured SWL (h/w)	6
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعياً	
Unstructured SWL (h/sem)	32	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعياً	
Total SWL (h/sem)	125		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None		Semester



Co-requisites module	None	Semester	
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Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	1- Enabling students to know the position of insects in the animal world 2- Enable students to know the external anatomy of insects 3- Enabling students to know the factors that help insects spread 4- Enabling students to know the harm caused by insects as well as the benefits they provide to humans 5- Enabling students to know the methods of reproduction and the conditions that help them reproduce for the purpose of controlling them and reducing their numbers.
Module Aims أهداف المادة الدراسية	-Cognitive objectives - Enable students to know the mouth parts of insects - Enabling students to know the mechanics of aviation - Enabling students to know the types of reproduction methods, breeding dates, and conditions that help reproduction - Enabling students to know the importance and functionality of the various body systems
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Planning for personal development . 2. Leadership skills . 3. Adopting the method of delivering an optional lecture by the student. 4. Developing the ability to link topics and conclusions
Indicative Contents المحتويات الإرشادية	4- Book of general entomology. 5- book of medical and veterinary insects, Dr. Jalil Abu Al-Hob 6- American Entomology .

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	3- Book of general entomology. 4- book of medical and veterinary insects, Dr. Jalil Abu Al-Hob	No
Recommended Texts		No
Websites		-----



Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Delivery Plan (Weekly. Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Concepts and definitions
Week 2	Concepts and definitions
Week 3	Insects Development
Week 4	Insects Development
Week 5	Insects
Week 6	Insects
Week 7	Insects
Week 8	Insects
Week 9	Insects
Week 10	Insects Taxonomy principles
Week 11	Myiasis Producing Flies
Week 12	Mosquitoes, Culicidae
Week 13	Mosquitoes Anopheles



Week 14	Vector born Control
Week 15	Final exam

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي العملي	
	Material Covered
Week 1	classification Of Insects
Week 2	The orders of insects
Week 3	Sub Class Apterygota
Week 4	Sub Class pterygota
Week 5	Division: Exopterygota
Week 6	order : Odonata
Week 7	Exam
Week 8	order Ortho tera
Week 9	order Dictyoptera
Week 10	order Isoptera
Week 11	order Dermaptera
Week 12	order Mallophaga
Week 13	order Anoplura
Week 14	order Hemiptera , Homotera
Week 15	Exam

Learning Outcomes and Assessment Methods for " Systematic Entomology " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I, Concepts and definitions	1-6	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam .
Topic II: Insects Development	1-3	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .



Topic III: - Insects	3-6	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams .
Topic IV: - Insects Taxonomy principles	1-6	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .
Topic V: Myiasis Producing Flies	1-3	Theoretical Lectures, Small Group Discussions,	Seminars , quizzes, discussions during lectures, Written Exams, oral exams .
Topic VI: - Mosquitoes, Culicidae	1-6	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars , quizzes, Major reports, Written Exams, Home work, oral exams .
Topic VII: Vector born Control	2-3	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation: -

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments & H.W.	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	10% (10)	Continuous	
	Seminar	1	10% (10)	14	
	Field Visits Report	1	10% (10)	2,7	
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2hr	10% (10)	8	LO # 1-15
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)	Total assessment	100% (100 Marks)

**"COURSE PORTFOLIO"**

Module Information						
معلومات المادة الدراسية						
Module Title	English Language.			Module Delivery		
Module Type	Basic			☐ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar		
Module Code	UNI-203					
ECTS Credits	2					
SWL (hr/sem)	50					
Module Level		2		Semester		4
Department		Bachelor's degree (Biology)		College	College of science	
Module Leader	Nadhim Tuheily Salim			E-mail	Nadhim.T.S@science.uoqasim.edu.iq	
Module Leader's Acad. Title		Assistant lacture		Module Leader's Qualification		MASTER
Module Tutor	Nadhim Tuheily Salim			e-mail		
Peer Reviewer Name				e-mail		
Scientific Committee Approval Date		13/9/2025		Version Number		1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	32	Structured SWL (h/w)	2
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	18	Unstructured SWL (h/w)	2
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	50		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

Relation with other Modules



العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
COURSE DESCRIPTION:	I have been doing the same experiences to get or produce high-quality education for students. Some of them are follows: 1-Develop interactive lesson plans to deliver high-quality education for students. 2-Manage students' behavior while developing and teaching strategies of English language support students' self-control. 3-Formulate and implement rules for behavior and procedures of teaching English language for maintaining a well-disciplined learning environment. 4-Assess students' skills while learning english to determine their needs and develop effective teaching plans particular to each student's abilities. 5-Facilitated students' presentations while providing interventions and methods on how they manage their presentations in a front of their friends.
Module Aims أهداف المادة الدراسية	6. The first level is to improve understanding (ability development). In interpretation, prediction and conclusion 7. The second level is the development of applied capabilities (Application) 8. The third level gives the student the ability to analyze 9. The fourth level is to develop the student's ability to integrate ideas and information (level Synthesis (which is the opposite of analysis 10. Level 5: Evaluation: Developing the student's ability to judge a value learned material
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the completion of the course, students are expected to be able to: 2- Teaching the student to receive (receiving) Receiving 2- Developing the student's ability to respond 3-c That the student be able to evaluate (give a value). 4- Improving the student's ability to value organization 5- C Integration of value with the behavior of the individual (giving a personality trait) Characterization by the vaule
Indicative Contents المحتويات الإرشادية	Indicative content includes the following.

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Soars, John and Liz, (2011), New Headway Plus, Special	Yes



	Edition, Beginner Level, Oxford University Press.	
Recommended Texts	New Headway Plus provides an integrated skills course with each unit divided into grammar, vocabulary, skills work and everyday English segments	yes
Websites	Oxford University Press: The New Headway series is published by Oxford University Press. and search for "New Headway Plus, Special Edition, www.oup.com Visit their website at Beginner Level " or browse their English language teaching section for information on the course.	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE:-

Delivery Plan (Weekly. Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Tenses & Questions Present, past, future Questions words Who ... ?, Why ... ?, How much ... ? 2-Reading " the great communicators" 3-Writing " a letter to a pen friend"
Week 2	Present tenses & have/have got Present Simple / Present Continuous 2-Reading " Living in the USA " 3-Writing " linking words such as but, however"



Week 3	Past tenses Past Simple & Past Continuous 2-Reading " the burglar's friend " 3-Writing " linking words such as , while, during and for" 4-vocabulary A-Irregular verbs B- Nouns, verbs, and adjectives Suffixes to make different parts of speech
Week 4	Quantity much and many some and any a few, a little, a lot of 2-Speaking " telling stories"
Week 5	Verb patterns 1 Future intentions / going to and wil 2-Reading " Hollywood Kids" 3-Listening "You've got a friend"
Week 6	Comparative and superlative adjectives big, bigger, biggest good, better, best 2-Reading" a tale of two millionaires" 3-vocabulary" synonyms and antonyms
Week 7	Present perfect and past simple Since and for Short answers 2-Reading" celebrity interview from Hi!"
Week 8	Have to / have got to Should / must 2-Writing" formal letters"
Week 9	Time clauses such as if 2-Vocabulary " hot verbs" 3-Reading" megalopolis"
Week 10	Verb patterns 2 2-Vocabulary" ed/ ing adjectives" 3-Writing" formal and informal letters"
Week 11	Passives 2-Vocabulary" verbs and nouns that go together" 3-Reading"DNA "
Week 12	Second conditional Might 2-Reading" supervulcano" 3-Vocabulary "Phrasal verbs"
Week 13	Present Perfect Continuous Present Perfect Simple versus Continuous 2-Vocabulary" word formation" 3-Reading " life on the beach" 4-listening" giving news"



Week 14	Past perfect Reported statements 2-Vocabulary " hot verbs" 3-Reading " the tale of two silent brothers" 4-listening" families that abroad" 5-Writing " a story "
Week 15	Revision of grammar for Units three , six ,nine, eleven, thirteen

Learning Outcomes and Assessment Methods for " English Language" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I, Tenses & Questions	1-6	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam .
Topic II: Present tenses & have/have got	1-3	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .
Topic III: - Past tenses	3-6	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams .
Topic IV: - Quantity	1-6	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars , Major reports, discussions during lectures. Written Exams, oral exams .
Topic V: - Verb patterns	1-3	Theoretical Lectures, Small Group Discussions,	Seminars , quizzes, discussions during lectures, Written Exams, oral exams .
Topic VI: - Comparative and superlative adjectives	1-6	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars , quizzes, Major reports, Written Exams, Home work, oral exams .
Topic VII: Present perfect and past simple	2-3	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation:-

Module Evaluation تقييم المادة الدراسية				
	Time/Nu	Weight (Marks)	Week Due	Relevant Learning



		Number			Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments & H.W.	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.				
	Seminar				
	Field Visits Report	1	10% (10)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		



MODULE DESCRIPTION

Module Information					
معلومات المادة الدراسية					
Module Title	Arabic Language			Module Delivery	
Module Type	Basic			☐ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UNI-204				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		UC	Semester of Delivery		
Administering Department		Biological	College	College of Science	
Module Leader	Hassan Mohammed Kadum		e-mail		
Module Leader’s Acad. Title		Assistant Professor	Module Leader’s Qualification		Ph.D.
Module Tutor			e-mail		
Peer Reviewer Name			e-mail	E-mail	
Scientific Committee Approval Date		16/9/2025	Version Number		1.0

Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem)	33	Structured SWL (h/w)	2
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w)	1
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	50		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. القراءة من دون لحن 2. الحد من الأخطاء الإملائية 3. الحد من الأخطاء النحوية 4. الاطلاع على تاريخ اللغة العربية 5. تعريف الطلبة بمزايا وخصائص لغة القرآن الكريم
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. تعلم القراءة من دون لحن 2. تجاوز الأخطاء الإملائية 3. معرفة تاريخ العربية 4. تعلم قواعد اللغة العربية 5. معرفة الطلبة بمزايا اللغة
Indicative Contents المحتويات الإرشادية	- العصور الأدبية وفنونها ، الشعر الجاهلي وخصائصه، نموذج تطبيقي قصيدة الاعشى (9 ساعات) - الخطابة في العصر الجاهلي، الشعر الإسلامي وخصائصه، دراسة قصيدة كعب بن زهير (البردة) (9 ساعات) - الشعر العباسي وخصائصه، الدراسة قصيدة للشاعر الشريف الرضي، الشعر الحديث مع دراسة نموذج تطبيقي للسياب، قواعد كتابة الهزرة (12 ساعة) - علامات الاعراب الفرعية والاصولية، الاغلاط اللغوية الشائعة في الكتابة العلمية، الفرق بين التاء والهاء والفرق بين الضاد والطاء، اهم المصادر المتداولة في علوم اللغة العربية (12 ساعة)

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	ان الاستراتيجية المعتمدة في هذه المادة هو تشجيع الطلبة على البحث والتحري عن الفنون الأدبية المتعددة للغة
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العربية فضلا عن قيامهم بعقد الورش والندوات التي تهتم باللغة العربية وتاريخها

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	البيان والتبيين . نهج البلاغة . الفية ابن مالك اللغة العربية العامة د. زينة الذهبي	Yes
Recommended Texts	نهج البلاغة	No
Websites	https://www.noor-book.com	

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	العصور الأدبية وفنونها
Week 2	الشعر الجاهلي وخصائصه
Week 3	نموذج تطبيقي قصيدة الاعشى
Week 4	الخطابة في العصر الجاهلي
Week 5	الشعر الإسلامي وخصائصه
Week 6	دراسة قصيدة كعب بن زهير (البردة)
Week 7	الامتحان الفصلي
Week 8	الشعر العباسي وخصائصه
Week 9	دراسة قصيدة للشاعر الشريف الرضي
Week 10	الشعر الحديث مع دراسة نموذج تطبيقي للسياب



Week 11	قواعد كتابة الهمزة
Week 12	علامات الاعراب الفرعية والاصلية
Week 13	الاغلاط اللغوية الشائعة في الكتابة العلمية
Week 14	الفرق بين التاء والهاء والفرق بين الضاد والطاء
Week 15	اهم المصادر المتداولة في علوم اللغة العربية

Learning Outcomes and Assessment Methods for " Arabic Language " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: العصور الأدبية وفنونها	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
Topic II: نموذج تطبيقي قصيدة الاعشى	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: الخطابة في العصر الجاهلي	3, 4, 5, 6 and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: - دراسة قصيدة كعب بن زهير (البردة)	3, 4, 5, 6,9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic V: الشعر الحديث مع دراسة نموذج تطبيقي للسياب	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: علامات الاعراب الفرعية والاصلية	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII: الفرق بين التاء والهاء والفرق بين الضاد والطاء	2, 4, 6, 7and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation

تقييم المادة الدراسية



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

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Computer science			Module Delivery	
Module Type	Basic			☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UNI-202				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level		2	Semester		4
Department		Biology	College	College of science	
Module Leader	م. بتول عبد الهادي سلطان عويد		E-mail	batool@uoqasim.edu.iq	
Module Leader's Acad. Title		Ass.Lec	Module Leader's Qualification		Ms,c
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		14/9/2025	Version Number		1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) +
Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	63	Structured SWL (h/w)	4
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	12	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	75		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-



Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
COURSE DESCRIPTION:	Teaching the student the basic components of the computer and how to use the basic programs and their applications, such as the Word program and the PowerPoint program used in preparing various presentations, as well as the Excel program and applications.
Module Aims أهداف المادة الدراسية	The main goal of study Students successfully completing this course will be able to: - Utilize the computer for fundamental tasks. - Identify and discuss the hardware components of the computer system. - Creating documents using a word processor and creating presentations. - Conducting research on the Internet. - An introduction to Artificial Intelligence
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Learning Outcomes of Computer Fundamentals and Artificial Intelligence (Very Brief) Basic Concepts: Understand the components of computers and artificial intelligence. - Digital Skills: Use applications and networks effectively and securely. - Programming Basics: Write simple codes and analyze data. - Practical Applications: Create artificial intelligence models to solve problems. - Ethics: Awareness of the challenges and responsibility in using technology.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Microsoft basics and applications.

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?



Required Texts	- Graham Brown, David Watson, “Cambridge IGCSE Information and Communication Technology”, 3rd Edition (2020) - Alan Evans, Kendall Martin, Mary Anne Poatsy, “Technology In Action Complete”, 16th Edition (2020). - Ahmed Banafa, “Introduction to Artificial Intelligence (AI)”, 1st Edition (2024). -	yes
Recommended Texts	- Windows system version is available Ahmed Banafa, “Introduction to Artificial Intelligence (AI)”, 1st Edition (2024).	yes
Websites	https:// https:// Computer Basics and the World of Artificial Intelligence.com/ar-sa	

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
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Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.				

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
Topic I :Security and networking			
1-2	6	Security and Networking: What is a network? - Types of networks. Basic network components. Network Security Basics. Understanding network threats. Network	1, 2, 3, 6, and 9



		Troubleshooting	
Topic II: - E-commerce			
3-4	6	Concepts of Electronic banking – services this include online banking: ATM and debit card services, Phone banking ,SMS banking, electronic alert, Mobile banking	3, 4, 5, and 9
- Topic III: - Computer Troubleshooting			
5-6	6	Computer Troubleshooting: identifying and solving common hardware and software problems that computer users encounter. Basic troubleshooting techniques and tools for diagnosing and resolving issues.	3, 4, 5, and 9
Topic IV: Introduction to AI			
7-9	9	Definition of AI, History of AI, AI Techniques and Approaches, Challenges and Ethical Considerations.	1, 3, 4, 8 and 8
Topic V: AI in our daily lives			
10	3	AI in Our Daily Lives: AI in smartphones and virtual assistants like Siri or Google Assistant.)	3, 8, and 9
Topic VI: - APPLICATION of AI			
11	3	– Applications of AI: Education, Healthcare, Finance, Transportation, Marketing and Advertising –	3, 8,9 and 10
12	3	AI and Society (How AI affects social, AI and – International relations, AI and the future of humanity.)	
13	3	Ethical Challenges in AI (AI ethics, privacy and – surveillance, the impact of AI on the job market.)	
- Topic VII; AI and society			
14-15	18	The future of AI :The Future of AI (Future trends in AI, recent – research and emerging technologies.	4, 10 and 11



Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: - network threats. Network Troubleshooting
Week 2	services Lab 2: : ATM and debit card
Week 3	Lab 3: privacy and surveillance, the impact of AI on the job
Week 4	AI in Our Daily Lives
Week 5	– Application of Artificial Intelligence in Education
Week 6	– Computer Troubleshooting: identifying and solving
Week 7	– Lab 7: Basic troubleshooting techniques and tools for diagnosing and resolving
Week 8	– Lab 8: software problems that computer users encounter.
Week 9	– Lab 9: AI in smartphones and virtual assistants like Siri or Google Assistant.)
Week 10	Lab 10: : Application of using artificial intelligence in shopping and transactions
Week 11	International relations Lab 11 : AI and
Week 12	– Lab 12 : How AI affects social,.
Week 13	Using artificial intelligence for surveillance-Lab 13
Week 14	– Lab 14 : - Research methods in emerging technologies
Week 15	Lab 15 :Examination

Learning Outcomes and Assessment Methods for " Computer science " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Security and		Report Writing, Field Visits, Theoretical Lectures, Scientific	quizzes, Major reports, discussions during lectures,



networking	4, 9 and 10	Films, Exploratory Work Teams.	Written Exams, oral exam.
– Topic II: - E-commerce	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III - APPLICATION of AI	3, 4, 5, 6 and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: - International relations, AI and the future of humanity.	3, 4, 5, 6,9 and 10	Theoretical Lectures, Small Group Discussions, and Scientific Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
– Topic V: AI and society Presentation views	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions, and Scientific Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: Ways to create a blank presentation	3, 4, 5, 6, 7, 8, and 9	Theoretical Lectures, Small Group Discussions, and Scientific Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII surveillance, the impact of AI on the job market.)	2, 4, 6, 7and 11	Theoretical Lectures, Small Group Discussions, and Scientific Problem Based Learning, Report Writing, Theoretical Lectures, .Small Group Discussions	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments & H.W.	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar				



	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		



MODULE DESCRIPTION

Module Information					
معلومات المادة الدراسية					
Module Title	جرائم نظام البعث في العراق			Module Delivery	
Module Type	Basic			Theory ✓ Lecture Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UNI-201				
ECTS Credits	2				
SWL (hr/sem)					
Module Level		2	Semester of Delivery		4
Administering Department		Type Dept. Code	College	Type College Code	
Module Leader	أ.م. فاضل راضي محمد حمود الخشخشي		e-mail	fadhilu99@biotech.uoqasim.edu.iq	
Module Leader's Acad. Title		Assist.Prof	Module Leader's Qualification		Ph.D.
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		24/09/2025	Version Number		1.0

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem)	32	Structured SWL (h/w)	2
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	18	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)		50	

الحمل الدراسي الكلي للطلاب خلال الفصل

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1- تعريف الطلبة بأهم جرائم حزب البعث في العراق . 2- تسليط الضوء على الانتهاكات الخطيرة لحقوق الإنسان . 3- شرح مفصل لتعريف بالانتهاكات الحاصلة في ظل النظام السابق 4- بيان حقائق هذا النظام الجائر من الأجيال التي لم تمر بمراحل حكمه. 5- تنشيط حركة البحث العلمي في ميادين الفكر السياسي والعلاقات الدولية والنظم والنظريات السياسية وحقوق الإنسان وتحليل الأزمات خصوصاً تلك التي لها تأثير مباشر على بلدنا ومستقبله وبما يسهم في تطور الدراسات والمناهج المتخصصة في هذه الحقول
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	تعرف الطالب على جرائم البعث وفق قانون المحكمة الجنائية العراقية 1- الحاصلة في زمن النظام السابق تمييز بين مفهوم الجرائم واقسامها 2- للتعرف على الجرائم النفسية والاجتماعية وابرز انتهاكات حزب البعث 3- للتعرف على قرارات المحكمة الجنائية الصادرة بحق الجرائم 4- تمكين الطالب من فهم المفاهيم الأسس الواضحة التي يجب ان يكون عليه النظام السياسي
Indicative Contents المحتويات الإرشادية	1- تنمية إمكانات الطلبة لمعرفة الأسس المفاهيمية للمادة العلمية داخل القاعة



	2-تساعد على اعداد طلبة قادرين على فهم واقع النظام السياسي في العراق
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	للتعرف والاطلاع على مجموعة من الجرائم التي ارتكبتها حزب البعث البائد والمنحل بحق أبناء الشعب العراقي ومن مختلف المكونات لأطيافه ولتأسيس وعي للطلبة لرفض جميع اشكال الظلم والتسلط لهذه الأنظمة والمطالبة بجميع الحقوق المدنية والسياسية من خلال لقاء المحاضرات واستخدام طريقة النقاش
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Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	كتاب جرائم حزب البعث منهاج صادر عن دائرة البحث والتطوير في وزارة التعليم العالي	Yes
Recommended Texts	د. علي حنوش، مشاكل الحاضر وخيارات المستقبل، دار الكنوز، لبنان، 2000	No
Websites	https://uomus.edu.iq/img/lectures21/MUCLecture_2023_1285263.pdf	

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	مفهوم الجرائم
Week 2	نبذة عن الانظمة السياسية في العراق
Week 3	النظام الملكي والنظام الجمهوري
Week 4	انتهاكات النظام البعثي للحقوق والحريات



Week 5	اثر المرحلة الانتقالية في محاربة السياسة الاستبدادية
Week 6	الميدان النفسي والاجتماعي
Week 7	الدين والدولة
Week 8	الثقافة والاعلام
Week 9	سياسة الارض المحروقة
Week 10	اماكن السجون والاحتجاز لحزب البعث
Week 11	الجرائم البيئة لحزب البعث التلوث الحربي والاشعاعي وانفجار الالغام
Week 12	وتجفيف الاهوار
Week 13	تدمير المدن والقرى
Week 14	تجريف البساتين الانهار والاشجار والنخيل
Week 15	جرائم المقابر الجماعية
Week 16	Preparatory week before the final Exam

" Course. Learning Outcomes and Assessment Methods for "جرائم حزب البعث في العراق.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: مفهوم الجرائم	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
Topic II: نبذه عن الانظمة السياسية في العراق	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: النظام الملكي والنظام الجمهوري	3, 4, 5, 6 and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: انتهاكات النظام البعثي للحقوق والحريات	3, 4, 5, 6, 9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic V: اثر المرحلة الانتقالية في محاربة السياسة الاستبدادية	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams,



			oral exams.
Topic VI: الميدان النفسي والاجتماعي	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII: الجرائم البيئية لحزب البعث التلوث الحربي والاشعاعي وانفجار الألغام	2, 4, 6, 7 and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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 Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11



assessment	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.				
	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)		

**"COURSE PORTFOLIO"**

Module Information				
معلومات المادة الدراسية				
Module Title	Animal Physiology		Module Delivery	
Module Type	Core		☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical Seminar	
Module Code	BIO-311			
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level	3	Semester		5
Department	Biology	College	College of science	
Module Leader	Rawaa Safaa Abbas		E-mail	dr.rawaasafaa@science.uoqasim.edu.iq
Module Leader's Acad. Title	assistant professor		Module Leader's Qualification	PhD
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	Name		e-mail	E-mail
Scientific Committee Approval Date	01/09/2025		Version Number	1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)

الحمل الدراسي للطالب



Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	36	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	
Module Aims أهداف المادة الدراسية	This study aims - The student's comprehension of the concept of the course and his ability to distinguish between it and other sciences. - Addressing a comprehensive description of the various body systems, with a focus on ruminant field animals and poultry. - Studying the vital processes that occur in the animal's body that transform the nutrients that the animal eats and turn them into animal products or other secondary waste. - Basic and physiology of growth and reproduction.



	Keep up with the development that is happening in the world	5.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The students understand different physiological mechanisms in the body.	1.
	Help the students to master the interaction and relationships between body systems.	2.
	The development of student's skills for going into relationship between the physiological and pathological disorders.	3.
	The students understand mode of action each physiological test.	4.
	Help the students to master the procedure of each physiological test.	5.
	The development of student's skills for going into the laboratory work experience as specialist who has an excellent background on all physiological tests and their relationship to disease and not as technician operating advice.	6.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – Theoretical lectures Introduction to Physiology. Cell physiology. The mechanisms of transports across the cell membrane. Phagocytosis mechanism. Pinocytosis mechanism. [10 hrs] Plasma, Blood physiology. Physical Characteristics of blood. Erythrocytes, Erythropoiesis. erythrocyte disorders. Types of anemia. Leukocytes. Functions of all types of Leukocytes. Platelets, Hemostasis mechanism, Fibrinolysis.[18hrs] Physiology of Digestion system. the Functions of the Digestive System. Nervous Regulation of Digestive System. Function of Stomach. Regulation of Gastric Secretion. Pancreas. Gall Bladder. Small Intestine. Large intestine [18hrs] Revision problem classes [3 hrs] Part B – Practical labs General safety instructions in the laboratory. Introduction Circulatory system. Fragility test 1. Fragility test 2. Total Red Blood Cell count. differential count. Estimation Hemoglobin. [18 hrs] PCV test. Platelets count. : ESR test. Bleeding time Test. Blood pressure. Physiological and pathological variation of Blood pressure. Blood groups. Respiratory test.[18 hrs]	



Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Guyton, A. and Hall, J.E. (2016). "Text book of physiology". 11th ed. Elsevier Saunders. China.	yes
Recommended Texts	Barrett, K.; brooks, H.; Boitano, S. and Barman, S. (2010). "Ganong's review of Medical Physiology". 23 th edition. McGraw Hill Companies. New York	yes
Websites	- https://www.nature.com/subjects/animal-physiology https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/animal-physiology	

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	Expanding students' perceptions about this science and its contents . Various techniques were used such as. Data show , Microscope, Posters . Students do study the following fields: An introduction to the study of Physiology of the body. Definition of body systems and understands how this system work under normal conditions. Definition of the techniques uses to estimation of body parameters. Study the disorders of this systems physiology and study the diseases results from disorders in homeostats. The relationships between the different body systems. This will be achieved through lectures, labs, and interactive tutorials and by types of practical diagnostic methods and involving some sampling activities that are interesting to the students.



Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Topic I: Introduction to Physiology.			
1	2	Introduction to Physiology.	1-6
Topic II: - Cell physiology.			



2	2	Cell physiology. –	1-3
Topic III: - The mechanisms of transports across the cell membrane.			
3	2	The mechanisms of transports across the cell membrane. –	3-6
Topic IV: - Phagocytosis mechanism. Pinocytosis mechanism.			
4	2	Phagocytosis mechanism. Pinocytosis mechanism. –	2-3
Topic V: - Blood physiology.			
5	2	Blood physiology. –	1-6
Topic VI: - Physical Characteristics of blood. Plasma, Erythrocytes, Erythropoiesis.			
6	2	Physical Characteristics of blood. Plasma, Erythrocytes, Erythropoiesis. –	1-6
Topic VII: - erythrocyte disorders.			
7	2	erythrocyte disorders. –	2-3
Topic VIII:- Types of anemia. Leukocytes.			
8	2	Types of anemia. Leukocytes. –	1-5
Topic VIII I:- Functions of all types of Leukocytes.			
9	2	Functions of all types of Leukocytes. –	5-7
Topic VIII I:- Platelets, Hemostasis mechanism, Fibrinolysis			



10	2	Platelets, Hemostasis mechanism, – Fibrinolysis	2-9
Topic VIII:- Physiology of Digestion system.			
11	2	Physiology of Digestion system. –	
Topic VIII:- Functions of the Digestive System.			
12	2	Functions of the Digestive System. –	10-11
Topic VIII:- Nervous Regulation of the Digestive .			
13	2	Function of Stomach. – Regulation of Gastric Secretion. –	8-12
Topic VIII:- Pancreas. Gall Bladder.			
14	2	Pancreas. – Gall Bladder. –	1-8
Topic VIII:- Small Intestine. Large intestine.			
15	21	Small Intestine. – Large intestine. –	2-9
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	Lab 1: General safety instructions in the laboratory.
Week 2	Lab 2: Introduction Circulatory system.



Week 3	Lab 3: Fragility test 1.
Week 4	Lab 4: Fragility test 2.
Week 5	Lab 5: Total Red Blood Cell count.
Week 6	Lab 6: differential count.
Week 7	Lab 7: Estimation Hemoglobin.
Week 8	Lab 8: PCV test.
Week 9	Lab9: Platelets count.
Week 10	Lab 10: ESR test.
Week 11	Lab 11: Bleeding time Test.
Week 12	Lab 12: Blood pressure.
Week 13	Lab 13: Physiological and pathological variation of Blood pressure.
Week 14	Lab 14: Blood groups.
Week 15	Lab 15: Respiratory test.

Learning Outcomes and Assessment Methods for " Animal Physiology " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Introduction to Physiology.	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
Topic II Cell physiology.	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: The mechanisms of		Problem Based Learning, Report Writing, Theoretical	Quizzes, discussions during lectures, Written



transports across the cell membrane.	3, 4, 5, 6 and 9	Lectures, Small Group Discussions, Scientific Films.	Exams, Home work, oral exams.
Topic IV: - Phagocytosis mechanism. Pinocytosis mechanism.	3, 4, 5, 6,9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic V: erythrocyte disorders.	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: Functions of all types of Leukocytes.	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII: Functions of the Digestive System.	2, 4, 6, 7and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	1	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	



(40%)	Seminar		5% (5)		
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information				
معلومات المادة الدراسية				
Module Title	Ecology		Module Delivery	
Module Type			✓ Theory ✓ Lecture ✓ Lab ✓ Tutorial ✓ Practical ✓ Seminar	
Module Code				
ECTS Credits				
SWL (hr/sem)				
Module Level	3	Semester	5	
Department	Biology	College	College of science	
Module Leader	Laith Taha Mohammed		E-mail	laithtaha@science.uoqasim.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Msc.	
Module Tutor	Name (if available)	e-mail	E-mail	
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	05/09/2025	Version Number	1.0	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطلاب			
Structured SWL (h/sem)	45	Structured SWL (h/w)	3



الحمل الدراسي المنتظم للطلاب خلال الفصل		الحمل الدراسي المنتظم للطلاب أسبوعيا	
Unstructured SWL (h/sem)	45	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطلاب خلال الفصل		الحمل الدراسي غير المنتظم للطلاب أسبوعيا	
Total SWL (h/sem)	90		
الحمل الدراسي الكلي للطلاب خلال الفصل			

Relation with other Modules:-

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
COURSE DESCRIPTION:	This course provides a comprehensive introduction to ecology, focusing on the interactions between organisms and their biotic and abiotic environments. It covers ecosystem structure, energy flow, nutrient cycling, population dynamics, community interactions, and ecological succession. The laboratory component emphasizes practical skills in field sampling, measurement of environmental parameters (temperature, humidity, pH, EC, turbidity, DO), soil texture analysis, primary productivity estimation, and biodiversity assessment.
Module Aims أهداف المادة الدراسية	To understand the basic concepts and levels of ecological organization. -1 To study the effects of abiotic factors (temperature, light, water, soil) on organisms and ecosystems. -2 To analyze energy flow and nutrient cycling (carbon, nitrogen, -3



	phosphorus) in ecosystems. To understand population dynamics, growth models (exponential and logistic), and reproductive strategies (r/K selection). -4 To explore community ecology, ecological succession, and climax communities. -5 To apply practical skills in field sampling, measurement of environmental variables, and laboratory analysis. -6 To evaluate human impacts on ecosystems and discuss conservation strategies. -7	
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	CODE	Learning Outcomes
	LO1	Define ecology, ecosystem, and levels of ecological organization.
	LO2	Identify biotic and abiotic components of ecosystems.
	LO3	Measure temperature, humidity, and atmospheric pressure using standard instruments.
	LO4	Measure pH, electrical conductivity (EC), and turbidity in soil and water samples.
	LO5	Classify soil texture using sieve and hydrometer methods and the soil texture triangle.
	LO6	Explain Liebig's Law of the Minimum and Shelford's Law of Tolerance and apply them to ecological scenarios.
	LO7	Describe energy flow, food chains, food webs, and ecological pyramids.
	LO8	Analyze the carbon, nitrogen, and phosphorus cycles and their environmental impacts.
	LO9	Differentiate between r-selected and K-selected species based on life history traits.
	LO10	Describe population growth models (exponential and logistic) and calculate population density and dispersion.
Indicative Contents المحتويات الإرشادية	Introduction to Ecology: Definition, levels of organization, biosphere, ecosystem components. .1 Abiotic Factors: Temperature, light, water, wind, pressure, soil. .2	



	Measurement of Abiotic Factors: Thermometer, hygrometer, barometer, dew point apparatus. .3
	Soil & Water Analysis: pH, electrical conductivity (EC), turbidity (nephelometer). .4
	Soil Texture Analysis: Sieve method, hydrometer method, soil texture triangle. .5
	Limiting Factors: Liebig's Law, Shelford's Law, tolerance ranges, stenohaline/euryhaline, stenothermal/eurythermal. .6
	Biotic Components: Producers, consumers, decomposers, trophic levels. .7
	Energy Flow: Food chains, food webs, ecological pyramids (energy, biomass, numbers). .8
	Biogeochemical Cycles: Carbon cycle, nitrogen cycle, phosphorus cycle, eutrophication. .9
	Population Ecology: Population density, dispersion, exponential and logistic growth models. .10
	r/K Selection: r-selected vs. K-selected species, life history strategies. .11
	Community Ecology: Species dominance, diversity, ecotone, edge effect. .12
	Ecological Succession: Primary and secondary succession, pioneer species, climax community. .13
	Field Sampling Techniques: Van Dorn sampler, quadrat, transect, soil auger, sample labeling. .14
	Conservation & Reporting: Pollution, climate change, biodiversity, scientific report writing. .15

Learning and Teaching Resources

مصادر التعلم والتدريس



	Text	Available in the Library?
Required Texts	Odum, E. P. Fundamentals of Ecology (5th ed.) - Begon, M., Townsend, C. R., & Harper, J. L. - Ecology: From Individuals to Ecosystems (4th ed.)	yes
Recommended Texts	Smith, T. M. & Smith, R. L. Elements of Ecology (9th ed.) - Ricklefs, R. E. The Economy of Nature (8th ed.)	yes
Websites	Khan Academy – Ecology NOAA – Ocean & Climate FAO – Soil & Water Resources	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم		
Strategies	strategy	Description
	Lectures	Interactive PowerPoint presentations with diagrams, animations, and short videos to illustrate key concepts.
	Laboratory Work	Hands-on experiments on measuring abiotic factors, soil texture, water quality, and primary productivity.
	Field Sampling	Field trips to natural ecosystems (e.g., wetlands, rivers) for sample collection using Van Dorn sampler, transects, and soil augers.
	Group Discussions	Student-led discussions on current environmental issues (e.g., climate change, biodiversity loss).



	Problem-Based Learning (PBL)	Case studies on eutrophication, pollution, and conservation planning.
	Scientific Films	Documentaries on ecosystems, nutrient cycles, and human impacts.

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
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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.				

COURSE SCHEDULE: -



Week	hours	Topics Covered	Learning Outcomes
Topic I: Introduction to Ecology			
1	3	Definition of Ecology – Levels of Organization – Ecosystem Components –	LO1, LO2
Topic II: Abiotic Factors			
2	3	Temperature, Light, Water – Wind, Pressure, Soil –	LO2, LO3
Topic III: Measurement of Abiotic Factors			
3	3	Thermometer, Hygrometer – Barometer, Dew Point Apparatus –	LO3
Topic IV: Soil & Water Analysis			
4	3	pH, Electrical Conductivity (EC) – Turbidity Measurement – (Nephelometer)	LO4
Topic V: Soil Texture Analysis			
5	3	Sieve Method – Hydrometer Method –	LO5
Topic VI: Limiting Factors			
6	3	Liebig's Law – Shelford's Law, Tolerance Ranges – Stenohaline/Euryhaline, – Stenothermal/Eurythermal	LO6
Topic VII: Biotic Components & Energy Flow			



7	3	Producers, Consumers, – Decomposers Food Chains, Ecological Pyramids –	LO7
Topic VIII: Biogeochemical Cycles			
8	3	Carbon Cycle – Nitrogen Cycle – Phosphorus Cycle, Eutrophication –	LO8
Topic IX: Population Ecology			
9	3	Population Density, Dispersion – Exponential & Logistic Growth –	LO10
Topic X: r/K Selection			
10	3	r-selected Species – K-selected Species –	LO9
Topic XI: Community & Succession			
11	3	Species Dominance, Diversity – Ecological Succession, Pioneer & – Climax Species	LO11
Topic XII: Field Sampling Techniques			
12	3	Van Dorn Sampler – Quadrat, Transect, Soil Auger – Sample Labeling & Storage –	LO12
Topic XIII: Primary Productivity			
13	3	Light & Dark Bottle Method – Chlorophyll Assimilation –	LO13



Topic XIV: Human Impacts			
14	3	Pollution, Eutrophication – Climate Change, Biodiversity Loss –	LO14
Topic XV: Conservation & Reporting			
15	3	Protected Areas, Sustainable Development – Scientific Report Writing –	LO14, LO15
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
Week	Material Covered
Week 1	Introduction to Lab: Safety, sampling tools, labeling, field forms
Week 2	Measurement of Temperature and Humidity (Wet/Dry Bulb, Dew Point)
Week 3	Measurement of pH and Electrical Conductivity (EC) in soil and water
Week 4	Measurement of Turbidity using Nephelometer
Week 5	Soil Texture Analysis: Sieve Method
Week 6	Soil Texture Analysis: Hydrometer Method
Week 7	Soil Classification using Textural Triangle
Week 8	Field Sampling: Soil and Water Collection Techniques
Week 9	Dissolved Oxygen (DO) Measurement (Winkler Method)
Week 10	Primary Productivity Estimation (Light & Dark Bottle Method)
Week 11	Nitrogen Cycle Analysis: NO_2^- , NO_3^- Testing in Soil
Week 12	Chlorophyll Assimilation and Productivity Estimation
Week 13	Field Trip: Sampling in a Natural Ecosystem (Van Dorn, Transect)



Week 14	Data Analysis, Report Writing, and Presentation
Week 15	Final Lab Reports Submission and Review

Learning Outcomes and Assessment Methods for "Biochemistry" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Introduction & Ecosystems	LO1, LO2	Lectures, Films, Discussions	Quizzes, Written Exam
Topic II : Abiotic Factors	LO2, LO3	Field Work, Lab, PBL	Lab Report, Quiz
Topic III : Soil & Water Analysis	LO4, LO5	Lab Experiments, Research	Lab Report
Topic IV: Limiting Factors	LO6	Lectures, Case Studies	Quiz, Exam
Topic V: Energy Flow	LO7	Diagrams, Case Studies	Homework, Seminar
Topic VI: Biogeochemical Cycles	LO8	Lab, Research	Lab Report, Project
Topic VII: Population Ecology	LO9, LO10	Simulations, Calculations	Assignments, Exam
Topic VIII: Community & Succession	LO11	Field Visit, Group Work	Field Report, Presentation
Topic IX: Field Sampling	LO12	Field Visit, Group Work	Field Report
Topic X: Primary Productivity	LO13	Lab Experiment	Lab Report
Topic XI: Human Impacts	LO14	Debates, Presentations	Essay, Project
Topic XII: Reporting	LO15	PBL, Writing	Final Report

Module Evaluation: -

Module Evaluation تقييم المادة الدراسية
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As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	3	10% (10)	4,8,12	LO1–LO11
	Assignments	2	10% (10)	6,10	LO6, LO9, LO10
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)	14	LO14, LO15
	Field Visits Report	1	5% (5)	13	LO11, LO12
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO1–LO8
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information				
معلومات المادة الدراسية				
Module Title	Parasites		Module Delivery	
Module Type			✓ Theory ✓ Lecture ✓ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code				
ECTS Credits				
SWL (hr/sem)				
Module Level	2	Semester		3
Department	Biological	College	College of Science	
Module Leader	Zahraa Nassr Jawad		E-mail	Zahraanassr@science.uoqasim.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification		M.Sc.
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	Name		e-mail	E-mail
Scientific Committee Approval Date			Version Number	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)
الحمل الدراسي للطالب



Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل		Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل		Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل			

Relation with other Modules:-

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module		Semester	4

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	This course aims to give the student basic information and knowledge in parasitology that focuses on organisms (parasites) that live on or in another organisms (the host) and get their food from or at the expense of their host This course is also concerned with the laboratory study of parasite organisms in a way that complements and supports theoretical information.
Module Aims أهداف المادة الدراسية	This study aims to give a complete idea about parasites , types of parasites , life cycles , parasitic diseases , laboratory diagnosis ,host parasite relationship , control and prevention.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	After completing the course, the student will be able to: Classify the main types of parasites that infect human and animal -9 Explains the complex and simple life cycles of parasites .-10 Connect parasites to the diseases they cause including -11



	symptoms and diagnostic methods . Master basic techniques for diagnosing parasites in clinical -12 samples . Identify different parasitic stages (e.g. eggs , cysts) under a -13 microscope . Properly prepare microscopic slides for parasite examination .-14 Analyze clinical cases related to parasitic diseases and develop a -15 diagnostic plan . Evaluate strategies for the prevention and control of parasitic -16 diseases .
Indicative Contents المحتويات الإرشادية	John, D. T.,& Petri, W.A.(2006). Markell and Voges, medical parasitology (9th ed)Saunders .

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	اسماعيل الحديثي , عبد الحسين حبش (2016) : علم الطفيليات Markell and Voges. Medical Parasitology. 6th ed. 1991. Saunders Co.	No
Recommended Texts		No
Websites		



Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE:-

Week	Hours	Topics Covered	Learning Outcomes
1-2	4	Introduction to parasitology – Parasite –	1-2



		Symbiosis - Symbiont - Types of Symbiosis - Host - Life cycle - Types of parasites - Types of host - Modes of infection - -	
3-4	4	Class :Sarcodina -	1-3
5-6	4	Flagellata -	3-6
7-8	4	Class : Sporozoa - General Characters - Terms defintion -	2-3
9-10	4	Phylum Platyhelminthes - General Characters - Class Cestoda -	1-8



11-12	4	Family Fasciolidae – characterized – Genus Fasciola (liver fluke) – Life cycle –	1-7
13-14	4	Class Cestoda (Tapeworms) –	
15	2	Nematodes – Characters of the class – Nematode systems –	
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	Lab 1: General laboratory instructions
Week 2	Lab 2: Phylum : Protozoa
Week 3	Lab 3: Class : Ciliates
Week 4	Lab 4: Class : Sporozoa
Week 5	Lab 5: Exam
Week 6	Lab 6: Phylum : Platyhelminthes
Week 7	Lab 7: Blood parasites of ruminants
Week 8	Lab 8: Tapeworms or Cestodes
Week 9	Lab 9: Nematodes
Week 10	Lab 10: <i>Ascaris lumbricoides</i>



Week 11	Lab 11: Medical insects
Week 12	Lab 12:Hymenoptera
Week 13	Lab 13: Exam
Week 14	Lab 14:
Week 15	Lab 15:

Learning Outcomes and Assessment Methods for "Water Resource Management" Course.

Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
1	Interactive lecture, Small Group Discussions, Simulations and scientific demonstrations, Concept map	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
2	Brainstorming, Problem solving, Interactive lecture, Small Group Discussions, Self-learning	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
3	Interactive lecture, Small Group Discussions, Simulations and scientific demonstrations, Concept map, Brainstorming, Problem solving,	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
4	Interactive lecture, Small Group Discussions, Simulations and scientific demonstrations, Concept map, Brainstorming, Problem solving, Cooperative learning	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
5	Interactive lecture, Small Group Discussions, Simulations and scientific demonstrations, Concept map, Brainstorming, Problem	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.



	solving, Cooperative learning	
6	Practical application, self-learning, cooperative learning, and exchange of experiences among colleagues	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
7-8	Interactive lecture, Small Group Discussions, Simulations and scientific demonstrations, Concept map, Brainstorming, Problem solving, Cooperative learning	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation:-

Module Evaluation					
تقييم المادة الدراسية					
As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 3 and 5
	Assignments & H.W.	2	10% (10)	2, 12	LO # 1, 3 and 6
	Projects / Lab.	1	10% (10)	Continuous	
	Seminar	1	10% (10)		
	Field Visits Report	1	10% (10)	10	LO # 3, 6
	Discussions During Lectures	10	10% (10)	Continuous	ALL
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # All
	Final Exam	3hr	50% (50)	16	All



nt	(50%)				
Total assessment			100% (100 Marks)		

توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured SWL	No. of weeks	Time Factor	SWL (hr)
Class	32	66	15	2	98
Lab.	32	45	15	2	77
Tutorial					
Self Study		7.40	15		7.40
Quizzes	2		2	30 min.	2
discussions during lectures	5		15	20 min.	5
Projects / Lab.	15	2	15	1 hr.	16
Seminar	2	5	1	15 min.	12
Assignments, Home Work		4	1		4
Report		10	1		10
Midterm Exam (10%)	4		1		4
Final Exam (50%)	4		1		4
		Total SWL (hr/ Semester)			175
		ECTS			7



"COURSE PORTFOLIO"

Module Information				
معلومات المادة الدراسية				
Module Title	Mycology II		Module Delivery	
Module Type	Core		☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	BIO-36233			
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level	3	Semester		6
Department	Biology	College	College of science	
Module Leader	Shorooq Ali Mohammed		E-mail	Shorooq_ali@science.uoqasim.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification		PhD
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	15/2/2026	Version Number	1.0	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .



Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	36	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	2.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	
Module Aims أهداف المادة الدراسية	By the end of this course, students will be able to: 1. Explain the principles of classical and modern fungal classification. 2. Distinguish major fungal groups based on structural and reproductive features. 3. Apply taxonomic keys for fungal identification. 4. Recognize diagnostic microscopic characteristics of important fungi.



	5. Relate fungal taxonomy to medical, agricultural, and environmental importance.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Differentiate fungal groups based on morphological and reproductive features. 2. Analyze microscopic characteristics for taxonomic identification. 3. Interpret phylogenetic relationships based on molecular data. 4. Apply dichotomous keys to classify unknown fungal samples.
Indicative Contents المحتويات الإرشادية	• Introduction to fungal taxonomy and its importance • General characteristics of Kingdom Fungi • Classical classification systems • Major fungal phyla: • Chytridiomycota • Zygomycota • Ascomycota • Basidiomycota • Anamorphic fungi (formerly Deuteromycota) • Molecular taxonomy and phylogeny • Identification methods and taxonomic keys • Applied importance of fungal classification

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Webster, J., & Weber, R. Introduction to - Fungi.	yes



Recommended Texts	1. Alexopoulos, C.J., Mims, C.W., & Blackwell, M. Introductory Mycology. - 2. Webster, J., & Weber, R. Introduction to Fungi. - 3. Kirk, P.M., et al. Dictionary of the Fungi. -	yes
Websites	https://www.indexfungorum.org/ https://www.speciesfungorum.org/ https://fungalgenera.org/	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	• Interactive lectures using PowerPoint presentations • Laboratory-based learning (microscopic examination and identification) • Problem-based learning through fungal identification cases • Use of taxonomic keys and databases • Group discussions and collaborative learning • Preparation of laboratory reports • Assignment-based learning (classification exercises) • Self-directed learning using scientific references and online databases.
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Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks	Definition
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			(%)	
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
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Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Topic I: Mycology.			
1	2	Definition and scope of taxonomy • Importance of fungal classification • Historical development of fungal systematics	1-6
Topic II: -.General Characteristics of Kingdom Fungi			



2	2	• Morphological features – • Cell wall composition – • Nutrition and reproduction – • Ecological roles. –	1-3
Topic III: -Classical Classification Systems.			
3	2	• Morphology-based classification – • Reproductive criteria in fungal grouping – • Limitations of traditional systems. –	3-6
Topic IV: -Major Fungal Phyla			
4	2	• Chytridiomycota – General features and examples – • Zygomycota – Characteristics and representative genera – • Ascomycota – Ascus structure and classification – • Basidiomycota – Basidium structure and major groups – • Anamorphic fungi (formerly Deuteromycota) –	2-3
Topic V: -Modern Molecular Taxonomy.			
5	2	• DNA sequencing in fungal classification – • Phylogenetic trees – • Ribosomal RNA genes in taxonomy –	1-6



		• Concept of monophyletic groups. –	
Topic VI: -Taxonomic Tools and Identification Methods			
6	2	• Use of dichotomous keys – • Microscopic examination – • Culture characteristics – • Spore morphology and measurements. –	1-6
Topic VII: -Applied Aspects of Fungal Taxonomy.			
7	2	• Medical importance – • Agricultural importance – • Industrial applications – • Environmental significance. –	2-3
Topic VIII:-. Applied fungal taxonomy in plant pathology.			
8	2	Deuteromycota. –	1-5
Topic VIII I:- Medical mycology and identification of pathogenic fungi.			
9	2	Eumycota. –	5-7
Topic VIII I :-Industrial and biotechnological applications of classified fungi			
10	2	Basidiomycotina –	2-9
Topic VIII:- Ecological roles and environmental significance of fungal groups.			
11	2	Moniliales. –	
Topic VIII:- Principles of fungal nomenclature and rules of naming.			



12	2	Lycoperdales. –	10-11
Topic VIII:- DNA barcoding and molecular markers in fungal identification.			
13	2	<i>Alternaria</i> . –	8-12
Topic VIII:- Phylogenetic analysis and modern reclassification systems			
14	2	<i>Fusarium</i> . –	1-8
Topic VIII:- Case studies and practical exercises in fungal classification.			
15	21	<i>Cladosporium</i> . –	2-9
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	Lab 1: • Introduction to laboratory safety and microscope use • Preparation of temporary fungal slides • Observation of basic fungal structures (hyphae, mycelium)
Week 2	Lab 2: Microscopic examination of fungal cell wall and septa • Observation of different hyphal types (septate vs coenocytic) • Study of fungal nutrition types (saprophytic, parasitic samples)
Week 3	Lab 3 • Study of classical morphological criteria used in classification • Observation of reproductive structures in preserved specimens



	• Comparison between traditional classification features.
Week 4	Lab 4: • Microscopic study of representatives of major phyla • Drawing and labeling reproductive structures.
Week 5	Lab 5: • Demonstration of molecular techniques (video/illustration of PCR steps) • Interpretation of simple phylogenetic trees • Use of online fungal databases for classification.
Week 6	Lab 6• Practical use of dichotomous keys • Identification of unknown fungal samples • Spore measurement using ocular micrometer.
Week 7	Lab 7: • Isolation of medically important fungi • Observation of pathogenic fungal slides • Preparation of simple laboratory report.
Week 8	Lab 8 Isolation of plant pathogenic fungi from infected leaves • Study of Deuteromycetes characteristics • Identification of common plant pathogens:..
Week 9	Lab9• Identification of pathogenic fungi causing human infections • Microscopic study of dermatophytes • Culture characteristics observation.
Week 10	Lab 10: Observation of industrial fungi • Study of basidiomycete fruiting bodies • Recording morphological characteristics.
Week 11	Lab 11. Study of ecological fungi from soil samples • Isolation using dilution plate method • Observation of genera such as Moniliales



Week 12	Lab 12: Practice of fungal nomenclature rules • Writing correct scientific names • Identification of Lycoperdales specimens.
Week 13	Lab 13: Identification of genus Alternaria • Study of conidial morphology • Comparison between closely related genera.
Week 14	Lab 14. Identification of genus Fusarium • Study of macroconidia and microconidia • Application of taxonomic keys.
Week 15	Lab 15. • Identification of genus Cladosporium • Comprehensive classification exercise (unknown samples) • Practical revision before final exam

Learning Outcomes and Assessment Methods for "Mycology II " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: : Mycology.	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
Topic II. General Characteristics of Kingdom Fungi	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: Classical Classification Systems.	3, 4, 5, 6 and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.



Topic IV: - Major Fungal Phyla	3, 4, 5, 6,9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic V: Modern Molecular Taxonomy	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: Taxonomic Tools and Identification Methods	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII: Applied Aspects of Fungal Taxonomy.	2, 4, 6, 7and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.

Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	1	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar		5% (5)		



	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information			
معلومات المادة الدراسية			
Module Title	Microbial Physiology		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	Bio-		
ECTS Credits	7.0		
SWL (hr/sem)	175		
Module Level	3	Semester	1
Department	Biological	College	College of Science
Module Leader	Zaman Salman Hamza	E-mail	zamansalman@science.uoqasim.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date		Version Number	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)

الحمل الدراسي للطالب



Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	111	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	7.40
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Relation with other Modules:-

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	This course, which is considered an introduction to Microbial physiology, is the study of the biological processes and functions of microorganisms, including how they obtain and utilize energy, nutrients, and other resources from their environment. It explores how microbial cells grow, reproduce, and adapt to their surroundings, encompassing the study of their metabolic pathways, biochemical reactions, and structural components addition to theoretical information, the department is keen to provide students with laboratory techniques related to microbiology.
Module Aims أهداف المادة الدراسية	. Course Objectives The teaching of the Medical Microbiology course aims to provide a set of theoretical and practical concepts that ultimately lead to Introducing and understanding students of microbiology, its scientific



	division, and the most important common and rare microbial diseases As well as graduating students who can: - Identify the requirements for the growth of microorganisms. - Obtain the skills required for the post-graduation plan (postgraduate studies). - Submit to external tests by local/regional/international bodies. Or treat it according to local, regional, and international standards - Identify the ability of microorganisms to synthesize amino acids, nucleic acids, lipids, and other growth requirements. - Identify other processes carried out by microorganisms, such as photosynthesis, fermentation, aerobic oxidation, and other decomposition and construction processes. - One of the most important goals that the Microbiology Department aspires to achieve in the future is to establish a research unit affiliated with the department to be a scientific and research source for other branches and to work on providing graduate students with information and scientific means to ensure raising the scientific level
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Course Outcomes, Teaching, Learning, and Evaluation Methods A- Cognitive Objectives 1- Obtaining basic information on Microbial physiology. A 2- Students should be able to analyze experimental data, interpret A results, and propose solutions to problems related to microbial physiology. 3- Enabling students to know the structure and function of microbial A cells, including prokaryotic and eukaryotic microorganisms, and the roles of key molecules like DNA, RNA, and proteins 4- Students should be able to explain how microbes interact with each A other and their environment, including processes like quorum sensing, symbiosis, and competition.



5- This includes understanding how microbial physiology principles A are used in industrial processes like fermentation, wastewater treatment, and the production of pharmaceuticals.

A6- Students should be able to understand how microbial physiology principles are used in industrial processes like fermentation, wastewater treatment, and the production of pharmaceuticals

B- Course-specific skill objectives.

B 1 -Gain proficiency in techniques used to study microbial physiology, including culturing, microscopy, and biochemical assays.

B 2- Interpret experimental data related to microbial growth, metabolism, and interactions

B 3 – Apply knowledge of microbial physiology to solve problems related to microbial behavior and application

B 4- Evaluate information, synthesize data, and apply theoretical concepts to practical situations.

B 5- Designing and executing experiments related to Basic Microbiology, Immunology, Molecular Biology, Recombinant DNA Technology, and Microbial Genetics

Teaching and learning methods

- ☐ Delivering detailed theoretical lectures according to the curriculum
- ☐ Providing students with the basics and additional topics related to the previous educational outcomes of skills, to solve scientific problems
 - ☐ Engaging students in discussions about controversial topics in microbial physiology, promoting critical thinking and communication skills
- ☐ Conducting experiments to measure microbial growth, enzyme activity, and metabolic pathways.
 - ☐ - Student contribution by actual participation in tests
 - ☐ Workshops and student groups, Project Team.
 - ☐ - E-learning.

Evaluation methods



☐ Daily exams with practical and scientific questions.

☐ Student participation individually or in groups in solving daily questions

☐ Retaking exams to increase the student's understanding and identify weaknesses to avoid them

☐ Participation grades for difficult competition questions between students orally.

☐ Grade homework assignments and reports.

☐ Participate in students presenting reports to their peers to increase behavioral and emotional skills

☐ Quarterly exams for the theoretical and practical curriculum, in addition to the final exam

C- Emotional and value objectives

C 1- A student might feel motivated to use their knowledge of microbial physiology to address challenges like disease outbreaks, food spoilage, or pollution

C 2- Understanding microbial processes is crucial for maintaining a healthy environment. Students might value the role of microbes in nutrient cycling, waste decomposition, and bioremediation.

C 3-Studying microbial physiology promotes scientific literacy and critical thinking, enabling students to evaluate information about microbes and their impact on the world.

C 4- Students might develop a personal connection to the field as they learn about the role of microbes in their health and well-being and the health of the planet.

Teaching and learning methods



- ☐ - Providing students with the basics and topics related to the outputs of thinking and analysis.
- ☐ Forming a discussion group through theoretical and practical lectures to discuss the topic presented, which requires thinking, analysis, and conclusion.
- ☐ Asking students a set of thinking questions during lectures, such as (what, how, when, and why) specific topics
 - ☐ Giving students homework that requires different scientific explanations.
- ☐ Teaching students how to build thinking and analysis methods.

Evaluation methods

- ☐ Daily exams with practical and scientific questions.
 - ☐ Participation grades for difficult competition questions between students.
 - ☐ Setting grades for homework and reports assigned to them.
 - ☐ Semester exams for the theoretical and practical curriculum, in addition to the final exam
- D- General and transferable skills (other skills related to employability and personal development).
- D 1- Enabling students to write reports on topics related to microbiology.
- D 2- Enabling students to link the occurrence of diseases to health reality and diagnostic methods.
- D 3- Enabling students to pass medical tests in health laboratory courses.
- D 4- Enabling students to continue self-development after graduation by learning about the laboratory management mechanism
- D 5- Holding special seminars for students for the self-development of their personalities



Indicative Contents المحتويات الإرشادية	
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Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
1- Required textbooks	Microbial Physiology	No
2- Main references (sources)	Medical Microbiology\ Jawetz, E.:Melizik, J.L. WAWERREN LEVENSON and Adelberg, E.A Microbial Physiology	No
A- Recommended books and references (scientific journals, reports, etc.)	مكتبة الكلية والتي تحوي مصادر ذات العلاقة	No

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success	A – Excellent	امتياز	90 - 100	Outstanding Performance



Group (50 - 100)	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	A considerable amount of work is 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.

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
1	2	Introduction to Microbial Physiology	
2	2	Bacterial cell structure and physiological functions	
3	2	Nutritional requirements	
4	2	Growth regulators and culture media	
5	2	Stages and methods of measuring growth	
6	2	Exam	



7	2	Methods of controlling microorganisms	
8	2	Energy production in living organisms	
9	2	Oxidation-reduction reactions	
10	2	Fermentation, aerobic, and anaerobic respiration	
11	2	Biosynthesis and photosynthesis	
12	2	Enzymes	
Final Exam			

Learning Outcomes and Assessment Methods for "Microbiolog" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic Introduction to Microbial Physiology,	1-6	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	Quizzes, Major reports, discussions during lectures, Written Exams, and oral exams.
Topic II: - Bacterial cell structure and physiological functions, Nutritional requirements	1-3	Problem-Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, and discussions during lectures. Written Exams, oral exams.
Topic III: - Growth regulators and culture media, Stages and methods of measuring growth	3-6	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, homework, and oral exams.



Topic IV: - Methods of controlling microorganisms,	1-6	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, and discussions during lectures. Written Exams, oral exams.
Topic V: Oxidation-reduction reactions,	1-3	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, and oral exams.
Topic VI: - Fermentation, aerobic, and anaerobic respiration, Biosynthesis, and photosynthesis	1-6	Problem-Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, homework, and oral exams.
Topic VII: Enzymes	2-3	Problem-Based Learning, Theoretical Lectures, Small Group Discussions.	Quizzes and discussions during lectures. Written Exams, Homework.

Module Evaluation:-

Module Evaluation					
تقييم المادة الدراسية					
As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 3 and 5
	Assignments & H.W.	2	10% (10)	2, 12	LO # 1, 3 and 6
	Projects / Lab.	1	10% (10)	Continuous	



	Seminar	1	10% (10)		
	Field Visits Report	1	10% (10)	10	LO # 3, 6
	Discussions During Lectures	10	10% (10)	Continuous	ALL
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # All
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured SWL	No. of weeks	Time Factor	SWL (hr)
Class	32	66	15	2	98
Lab.	32	45	15	2	77
Tutorial					
Self Study		7.40	15		7.40
Quizzes	2		2	30 min.	2
discussions during lectures	5		15	20 min.	5
Projects / Lab.	15	2	15	1 hr.	16
Seminar	2	5	1	15 min.	12
Assignments,		4	1		4



Home Work					
Report		10	1		10
Midterm Exam (10%)	4		1		4
Final Exam (50%)	4		1		4
		Total SWL (hr/ Semester)			175
		ECTS			7



"COURSE PORTFOLIO"

Module Information					
معلومات المادة الدراسية					
Module Title	Medicinal Plant			Module Delivery	
Module Type	Optional			Theory ✓Lecture ✓Lab Tutorial Practical Seminar	
Module Code	BIO-316				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level		3	Semester		5
Department		Biology	College	College of science	
Module Leader			E-mail		
Module Leader's Acad. Title		Assistant Lecturer	Module Leader's Qualification		Msc.
Module Tutor	Ahmed Ali		e-mail	ahmedalihassen896@gmail.com	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		1/09/2025	Version Number	1.0	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)



الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	36	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Relation with other Modules:-

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	
Module Aims أهداف المادة الدراسية	The module objectives of medicinal plants may include: 1. Understanding the importance of medicinal plants in traditional and modern medicine. 2. Describing the different categories of secondary metabolites produced by medicinal plants and their biological activities. 3. Understanding the principles of plant identification, collection, and preparation for medicinal use. 4. Analyzing the methods used to extract and isolate bioactive



	compounds from medicinal plants, including traditional and modern techniques. 5. Evaluating the safety and efficacy of medicinal plants and their bioactive compounds through in vitro, in vivo, and clinical studies. 6. Understanding the mechanisms of action of bioactive compounds in medicinal plants and their potential applications in disease prevention and treatment. 7. Understanding the importance of sustainable use and conservation of medicinal plants, including ethical and legal considerations. Overall, the medicinal plants module aims to provide students with -8 a broad understanding of the principles and techniques of medicinal plant research, as well as an appreciation of the many applications of medicinal plants in traditional and modern medicine. The module also aims to emphasize the importance of sustainable use and conservation of medicinal plants for future generations.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The module learning outcomes of medicinal plants may vary depending on the level and scope of the course. However, some general learning outcomes that students may expect to achieve after completing a medicinal plants module include: 2. Understanding the diversity of medicinal plants and their historical and cultural significance in traditional and modern medicine. 3. Describing the different categories of secondary metabolites produced by medicinal plants and their biological activities, including antioxidant, anti-inflammatory, and anticancer properties. 4. Analyzing the methods used to extract and isolate bioactive compounds from medicinal plants, including traditional and modern techniques, and evaluating their efficacy and safety. 5. Understanding the principles of plant identification, collection, and preparation for medicinal use, including ethical and legal considerations. 6. Evaluating the mechanisms of action of bioactive compounds in



	medicinal plants and their potential applications in disease prevention and treatment. 7. Developing skills in experimental design, data analysis, and interpretation of results in medicinal plant research. 8. Understanding the importance of sustainable use and conservation of medicinal plants, including the role of conservation biology, ethnobotany, and bioprospecting.
Indicative Contents المحتويات الإرشادية	The indicative contents of a medicinal plants module may vary depending on the level and scope of the course. However, here are some common topics that may be covered: 1. Introduction to Medicinal Plants: ☐ Historical and cultural significance of medicinal plants ☐ Types of medicinal plants and their uses ☐ Importance of medicinal plants in modern medicine 2. Secondary Metabolites in Medicinal Plants: ☐ Categories of secondary metabolites produced by medicinal plants ☐ Biological activities of secondary metabolites, including antioxidant, anti-inflammatory, and anticancer properties ☐ Chemical structure and biosynthesis of secondary metabolites 3. Extraction and Isolation of Bioactive Compounds: ☐ Methods for extracting and isolating bioactive compounds from medicinal plants, including traditional and modern techniques ☐ Evaluation of the efficacy and safety of bioactive compounds 4. Plant Identification, Collection, and Preparation: ☐ Principles of plant identification, collection, and preparation for medicinal use ☐ Ethical and legal considerations in medicinal plant research 5. Mechanisms of Action of Bioactive Compounds:



	☐ Mechanisms of action of bioactive compounds in medicinal plants ☐ Potential applications of bioactive compounds in disease prevention and treatment 6. Experimental Design and Data Analysis: ☐ Principles of experimental design and data analysis in medicinal plant research ☐ Interpretation of results and drawing of conclusions 7. Sustainable Use and Conservation of Medicinal Plants: ☐ Importance of sustainable use and conservation of medicinal plants ☐ Role of conservation biology, ethnobotany, and bioprospecting in medicinal plant research 8. Emerging Issues in Medicinal Plants: ☐ Trends in medicinal plant research ☐ New technologies for medicinal plant research ☐ Ethical and legal issues in the use and development of medicinal plants Generally, a medicinal plants module aims to provide students with a comprehensive understanding of the bioactive compounds produced by medicinal plants, the methods used to extract and isolate these compounds, and their potential applications in disease prevention and treatment. The module also emphasizes the importance of sustainable use and conservation of medicinal plants and the ethical and legal considerations in their study and development.
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Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1- medicinal plant .joy et al .1998. 2- Constituents of medicinal plants. Andrew pengelly	yes



	. 2nd edition. 2004. 3- Extraction Technologies for Medicinal and Aromatic Plants, Trieste, 2008	
Recommended Texts	Phytochemical Methods , J.B. Harborne - second edition	yes
Websites	https://www.ebookdownload.net https://book.cc/book/2861582/b3a4ec Scholar.google.com	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Effective learning and teaching strategies for a medicinal plants module may include a variety of approaches, such as: 1. Lectures: Traditional lectures can be used to introduce students to key concepts, theories, and principles of medicinal plants. Lectures can be complemented with visual aids such as diagrams, images, and videos to enhance understanding. 2. Laboratory sessions: Laboratory sessions are crucial for providing hands on experience with techniques used to extract, isolate and evaluate bioactive compounds from medicinal plants. These sessions can involve the use of different extraction techniques, isolation and characterization of bioactive compounds, and evaluation of their biological activities. 3. Group discussions: Group discussions can be used to encourage students to actively engage with the subject matter, share ideas and insights, and learn from each other. Discussions can focus on case studies, current research topics, and the practical applications of medicinal plants in disease prevention and treatment. 4. Case studies: Case studies can be used to illustrate the practical applications of medicinal plants in real world scenarios. Case studies can be drawn from fields such as pharmacology, medicinal chemistry, and herbal medicine. 5. Field trips: Field trips can be used to provide students with first hand
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experience of observing medicinal plant practices in the field. These trips can help students to appreciate the diversity of medicinal plants, the importance of sustainable use and conservation of medicinal plants, and the impact of medicinal plants on public health.

6. Online resources: Online resources such as interactive simulations, virtual labs, and online quizzes can be used to enhance learning and reinforce concepts.

7. Assessment: Assessment strategies such as written assignments, lab reports, and exams can be used to evaluate students' understanding of medicinal plants concepts and their ability to apply these concepts to solve problems.

Overall, a combination of these learning and teaching strategies can help students to develop a deep understanding of medicinal plants, and to develop the practical skills required for research and application of the diverse medicinal plant techniques required for the effective development of new medicinal products.

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded



(0 – 49)	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
Week	Material Covered
Week 1	<i>Introduction of Medicinal Plants</i>
Week 2	<i>Biological importance of Medicinal Plants</i>
Week 3	Major Metabolic Pathways
Week 4	<i>Phytochemical (Metabolic and Significance)</i>
Week 5	<i>Drug discovery from plant sources</i>
Week 6	<i>Factors affecting the production of active ingredients</i>
Week 7	Alkaloids Compounds
Week 8	Exam
Week 9	<i>Phenolic Compounds</i>
Week 10	<i>Flavonoids and Tannins</i>
Week 11	<i>Terpenoids and Polyterpenes</i>
Week 12	<i>Glycosides</i>
Week 13	<i>Saponins</i>
Week 14	<i>Essential Oil</i>



Week 15	Mode of Release Secondary Metabolite
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
Week	Material Covered
Week 1	Introduction of Medicinal Herbs
Week 2	Collection and Preparation of Medicinal Herbs
Week 3	Processing of Medicinal Herbs
Week 4	General Methods of Extraction
Week 5	Extraction and isolation of alkaloids
Week 6	Extraction and isolation of Glycoside
Week 7	Extraction and isolation of phenols
Week 8	Extraction and isolation of terpenes
Week 9	Exam
Week 10	General methods of separation and isolation of plant constituents
Week 11	Paper chromatography (PC)
Week 12	Thin Layer Chromatography (TLC)
Week 13	Separation in Column Chromatography
Week 14	Qualitative tests for secondary metabolites (Chemical Reagents)
Week 15	Knowledge of common Medicinal Herbs in Iraq

Learning Outcomes and Assessment Methods for "Biochemistry" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
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Topic I: Introduction of Medicinal Plants	LO1, LO2	Lectures, Films	Quizzes, Exam
Topic II: Biological importance of Medicinal Plants	LO2, LO3	Case Studies, PBL	Assignment, Seminar
Topic III: Major Metabolic Pathways	LO4	Research, Lab	Lab Report
Topic IV: Phytochemical (Metabolic and Significance)	LO5	Lab Experiment	Lab Report
Topic V: Alkaloids Compounds	LO6	Simulation, Discussion	Project
Topic VI: Phenolic Compounds Week 10 Flavonoids and Tannins	LO7, LO8, LO9	Lab Work	Lab Report
Topic VII: Flavonoids and Tannins	LO10, LO11	Lab Experiment	Lab Report
Topic VIII: Glycosides	LO12	Field Visit	Field Report
Topic IX: Essential Oil	LO13	PBL, Debate	Essay
Topic X: Mode of Release Secondary Metabolite	LO15	Research, Presentation	Presentation
Topic X I: Reporting	LO14	Writing	Final Report

Module Evaluation: -

Module Evaluation				
تقييم المادة الدراسية				
As	Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome



Formative assessment (40%)	Quizzes	3	10% (10)	4,8,12	LO1–LO8
	Assignments	2	10% (10)	6,10	LO4, LO6, LO13
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)	14	LO13, LO14
	Field Visits Report	1	5% (5)	8	LO12
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO1–LO8
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		



"COURSE PORTFOLIO"

Module Information				
معلومات المادة الدراسية				
Module Title	Genetics		Module Delivery	
Module Type	Core		☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical Seminar	
Module Code	BIO-311			
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level	3	Semester		5
Department	Biology	College	College of science	
Module Leader	Zahraa isam jameel		E-mail	zahraa.isam@science.uoqasim.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification		PhD
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	Name		e-mail	E-mail
Scientific Committee Approval Date	18/02/2026	Version Number	1.0	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

**Student Workload (SWL)**

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	36	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	2.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-**Relation with other Modules**

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	
Module Aims أهداف المادة الدراسية	Teaching third-stage students / Department of biology the principles of genetics and the scientific developments that have occurred in this field, in order to enable them to teach this subject in intermediate and preparatory studies.
Module Learning Outcomes	A - Knowledge and Understanding A-1 The student should recognize the biological scientific concepts related to plants.



مخرجات التعلم للمادة الدراسية	A-2 The student should recognize the biological scientific concepts related to animals. A-3 The student should recognize the behavioral scientific concepts associated with the learning process of microbiology and immunology. A-4 The student should understand how to benefit from and use laboratory equipment. A-5 The student should learn to use diverse methods in teaching. A-6 Preparing trained and qualified personnel to work in educational institutions. A-7 Preparing trained and qualified personnel to work in health institutions. B - Subject-Specific Skills B-1 Teaching skills in the subject of Biology. B-2 The student should have the ability to describe models and laboratory media. B-3 The student should possess the ability to link causes with natural causative agents/factors. C - Thinking Skills C-1 Dialogue method between the student and the professor. C-2 Preparing weekly reports. C-3 Conducting discussions of the results in biological analyses. C-4 Exploratory thinking (discovering scientific facts through laboratory experiments). D - General and Transferable Skills (Other skills related to employability and personal development) D-1 The student should be able to employ the knowledge they have received. D-2 The student should acquire the skill of the teaching and learning profession. D-3 The student should be able to document what they have gained in
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	professional development.
Indicative Contents المحتويات الإرشادية	Part A genetics Theory to understand the range of strategies used by bacteria to adapt to changing conditions, have a detailed knowledge of a set of examples of regulatory systems. – to be able to describe how genome analysis methods help Elucidate regulatory mechanisms. have acquired detailed knowledge of microbial genetics and the cellular repertoire of Yeast (<i>Saccharomyces cerevisiae</i>) and <i>Escherichia coli</i> to regulate gene and protein function as well as to respond to stress and environmental signals operating at different levels in the cell from gene expression to protein function and signaling [15 hrs] To illustrate at advanced level how microbial genetic systems contribute to current understanding of molecular processes involved in the replication, recombination and repair of genomes and their Differential expression in response to environmental stimuli. [15 hrs] Describe in detail selected processes relating to replication, recombination and expression of DNA as studied in yeast and bacteria. [10 hrs] Show that bacteria use genomic rearrangements to affect gene expression, provide examples of different strategies and the mechanisms involved in adaptive responses. [15 hrs] Revision problem classes [6 hrs]
	Part B - functional genomics
	Fundamentals
	Genome sequencing projects give the complete gene complement of a bacterium . [15 hrs]
	will illustrate how genome sequence data adds to our understanding of adaptive responses. [7 hrs]
	show how functional genomics will contribute to the investigation of gene regulation, expected to describe the strategies available to investigate gene expression on a genome wide basis. [15 hrs]

Learning and Teaching Resources



مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1. Klug and Cummings, (2005), Essentials of genetics □ -	yes
Recommended Texts	2. Gardener, 1985, Principles of genetics -	yes
Websites	There are some useful web sites which students can get advantage from them and the web sites are: ScienceDirect.com and pubMedCentral.	

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	– describe in detail selected processes relating to replication, recombination and expression of DNA as studied in yeast and bacteria – design experimental strategies to solve problems... – research the relevant literature

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors



	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Topic I: Introduction to genetics			
1	2	Introduction to genetics	1-6
Topic II: Mendels first law			
2	2	Mendels first law	1-3
Topic III: Mendels second law			
3	2	Mendels second law –	3-6
Topic IV: Principles of cytogenetic			
4	2	Principles of cytogenetic and objectives –	2-3



Topic V: - Gene-gene interaction

5	2	Gene-gene interaction –	1-6
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Topic VI: Death genes and multiple alleles

6	2	Death genes and multiple alleles –	1-6
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Topic VII: - Quantitative genetics

7	2	Quantitative genetics –	2-3
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Topic VIII:- Genetics and crossing over

8	2	Genetics and crossing over –	1-5
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Topic VIII I Linkage disequilibrium

9	2	Linkage disequilibrium –	5-7
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Topic VIII I Genetics maps

10	2	Genetics maps –	2-9
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Topic VIII:- Cytogenetic

11	2	Cytogenetic –	
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Topic VIII:- Chromosomal mutations

12	2	Types of Chromosomal mutations –	10-11
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Topic VIII Genetic mutation

13	2	Types of Genetic mutation –	8-12
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Topic VIII:- Sex determination

14	2	Sex determination –	1-8
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Topic VIII:- chromosome aberration



15	21	chromosome aberration –	2-9
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
Week	Material Covered
Week 1	Lab 1: General safety instructions in the laboratory.
Week 2	Lab 2: drosophila insect
Week 3	Lab 3: distinguish between male and female
Week 4	Lab 4: study of phenotype
Week 5	Lab 5: Mendels first law
Week 6	Lab 6: application of 1 Mendel law
Week 7	Lab 7: Mendels second law
Week 8	Lab 8: application of Mendels second law
Week 9	Lab 9: sex determination
Week 10	Lab 10: human genetics
Week 11	Lab 11: linkage and crossover
Week 12	Lab 12: complete of linkage and crossover
Week 13	Lab 13: quantitative genetics
Week 14	Lab 14: qualitative genetics
Week 15	Lab 15 :final exam

Learning Outcomes and Assessment Methods for " Animal Physiology " Course.



Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Introduction to genetics.	4, 9 and 10	-Using a data show and PowerPoint presentations for the lecture. -Preparing reports by the students. -Student participation in some axes/topics of theoretical subjects and discussing them. -Encouraging the student to participate in discussions and conclusions regarding theoretical topics.	Conducting theoretical exams and questions, some of which are oral. Weekly and monthly tests, preparing reports, oral evaluations, and discussions on the given lectures.
Topic II human genetics.	3, 4, 7 and 9	-Preparing reports by the students. -Student participation in some axes/topics of theoretical subjects and discussing them. -Encouraging the student to participate in discussions and conclusions regarding theoretical topics.	Conducting theoretical exams and questions, some of which are oral. Weekly and monthly tests, preparing reports, oral evaluations, and discussions on the given lectures..
Topic III: linkage and crossing over	3, 4, 5, 6 and 9	-Student participation in some axes/topics of theoretical subjects and discussing them. -Encouraging the student to participate in discussions and conclusions regarding theoretical topics.	Conducting theoretical exams and questions, some of which are oral. Weekly and monthly tests, preparing reports, oral evaluations, and discussions on the given lectures.
Topic IV: cytogenetic	3, 4, 5, 6,9 and 10	-Encouraging the student to participate in discussions and conclusions regarding	Conducting theoretical exams and questions, some of which are oral.



		theoretical topics.	Weekly and monthly tests, preparing reports, oral evaluations, and discussions on the given lectures.
Topic V: sex determination	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Conducting theoretical exams and questions, some of which are oral. Weekly and monthly tests, preparing reports, oral evaluations, and discussions on the given lectures.
Topic VI: chromosome aberration	3, 4, 5, 6, 7, 8, and 9	-Using a data show and PowerPoint presentations for the lecture. -Preparing reports by the students. -Student participation in some axes/topics of theoretical subjects and discussing them. -Encouraging the student to participate in discussions and conclusions regarding theoretical topics..	Conducting theoretical exams and questions, some of which are oral. Weekly and monthly tests, preparing reports, oral evaluations, and discussions on the given lectures.
Topic VII: Chromosomal mutations	2, 4, 6, 7and 11	-Using a data show and PowerPoint presentations for the lecture. -Preparing reports by the students. -Student participation in some axes/topics of theoretical subjects and discussing them. -Encouraging the student to participate in discussions and	Conducting theoretical exams and questions, some of which are oral. Weekly and monthly tests, preparing reports, oral evaluations, and discussions on the given lectures.



		conclusions regarding theoretical topics.	
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Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	1	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar		5% (5)		
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Histology			Module Delivery	
Module Type				✓ Theory ✓ Lecture ✓ Lab ✓ Tutorial ✓ Practical ✓ Seminar	
Module Code					
ECTS Credits					
SWL (hr/sem)					
Module Level		3	Semester		
Department		Biology	College	College of science	
Module Leader	Hawraa Mahmood Murad		E-mail	Dr. hawraa @science.uoqasim.edu.iq	
Module Leader’s Acad. Title		Assistant Pof.	Module Leader’s Qualification		Msc.
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		07/09/2025	Version Number	1.0	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) +
Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	45	Structured SWL (h/w)	3
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	45	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	90		
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-



Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents		
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية		
COURSE DESCRIPTION:	Histology is the study of the microscopic structure of cells, tissues, and organs. This course provides students with a fundamental understanding of normal human tissue architecture and cellular organization, forming a foundation for understanding physiology, pathology, and clinical medicine. The course emphasizes both theoretical knowledge and practical laboratory skills, enabling students to recognize and differentiate between various tissue types under the microscope. It integrates the study of cellular structures, tissue organization, and organ systems, highlighting the relationship between structure and function.	
Module Aims أهداف المادة الدراسية	The aims of this module are to: • Introduce the fundamentals of cell and tissue structure – understanding cellular organization and tissue architecture. • Develop practical skills in histological techniques – including tissue preparation, sectioning, staining, and microscopy. • Enable recognition of normal tissue types – identifying epithelial, connective, muscular, and nervous tissues under the microscope. • Provide understanding of organ and system histology – correlating microscopic structure with organ function. • Foster critical observation and analytical skills – interpreting histological images and integrating knowledge with physiology and pathology. • Promote laboratory safety and professional practice – handling specimens, maintaining hygiene, and adhering to ethical laboratory standards. • Prepare students for advanced biomedical studies – including pathology, physiology, and clinical medicine.	
Module Learning	CODE	Learning Outcomes



Outcomes مخرجات التعلم للمادة الدراسية	LO1	Identify and describe the microscopic structure of cells and tissues
	LO2	Recognize epithelial, connective, muscular, and nervous tissue types.
	LO3	Demonstrate competence in histological techniques
	LO4	Perform tissue fixation, embedding, sectioning, staining, and slide preparation.
	LO5	Interpret histological slides and images accurately
	LO6	Distinguish normal tissue architecture from artifacts or abnormalities.
	LO7	Correlate tissue structure with function
	LO8	Explain how the microscopic organization supports physiological roles of organs and systems.
	LO9	Apply histology knowledge to clinical contexts
	LO10	Relate normal histology to pathological changes and diagnostic observations.
Indicative Contents المحتويات الإرشادية	• Introduction to Histology • Definition, scope, and importance • Microscopy: light, electron, and virtual • Histological techniques: fixation, embedding, sectioning, staining • Cell Structure and Function • Plasma membrane, organelles, cytoskeleton • Cell junctions and communication • Cell cycle and division (mitosis and meiosis) • Epithelial Tissue • Classification: simple, stratified, pseudostratified, transitional • Specialized epithelia: ciliated, glandular, sensory • Functions and locations in the body • Connective Tissue – General Features • Components: cells, fibers, extracellular matrix • Classification: loose, dense, reticular, adipose • Function in support and defense • Specialized Connective Tissues • Cartilage: hyaline, elastic, fibrocartilage • Bone: compact and spongy • Blood and lymph as connective tissue	



• **Muscle Tissue**

- Skeletal, cardiac, and smooth muscle
- Microscopic structure and functional features
- Muscle contraction basics

• **Nervous Tissue**

- Neurons and neuroglia
- Synapses and nerve conduction
- Organization in central and peripheral nervous systems

• **Integumentary System (Skin)**

- Epidermis, dermis, hypodermis
- Hair, nails, and glands
- Histological features and functions

• **Cardiovascular System**

- Heart tissue organization
- Blood vessel histology: arteries, veins, capillaries
- Microvasculature and exchange surfaces

• **Respiratory System**

- Trachea, bronchi, bronchioles, alveoli
- Respiratory epithelium and mucosa
- Structure-function correlation

• **Digestive System**

- Histology of oral cavity, esophagus, stomach, intestines
- Liver, pancreas, and gallbladder
- Mucosal organization and specialized cells

• **Urinary System**

- Kidney: cortex, medulla, nephrons
- Ureters, bladder, urethra
- Epithelial lining and filtration structures

• **Endocrine Glands**

- Pituitary, thyroid, adrenal, pancreas
- Hormone-producing cells and secretory patterns
- Microscopic differences between endocrine and exocrine tissues



	• Reproductive System • Male: testes, epididymis, penis • Female: ovary, uterus, fallopian tube • Gametogenesis and specialized epithelia • Lymphoid and Immune System • Lymph nodes, spleen, thymus • Tonsils and mucosa-associated lymphoid tissue (MALT) • Histology of immune response components •
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Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	- ☐ Junquiera's Basic Histology - Authors: Anthony L. Mescher - Provides a clear introduction to histology with detailed illustrations and clinical correlations. - Widely used in medical and biomedical programs. - ☐ Wheater's Functional Histology - Authors: Barbara Young, Geraldine O'Dowd, Phillip Woodford - Focuses on normal histology and its functional correlation, with high-quality micrographs. - ☐ Ross Histology: A Text and Atlas - Authors: Wojciech Pawlina, Michael H. Ross	yes
Recommended Texts	• Histology: A Text and Atlas – Integrates concise text with a rich atlas of micrographs to reinforce learning and visual identification. • Color Textbook of Histology – Focuses on clear, color illustrations and student-friendly explanations of tissues and organs. • Atlas of Human Histology – Detailed atlas with labeled images ideal for slide review and exam	yes



	preparation. • Histology Learning System – Structured learning platform (often with online access) combining text, quizzes, and slide images for self-study.	
Websites	<u>Interactive Learning & Virtual Microscopy</u> • <u>Histology Guide – Comprehensive virtual histology slides, zoomable images, and microscope-style navigation of cells and tissues. Interactive Histology Guide – Cells, Tissues & Organs</u> • <u>Histology Slide Box (Virtual Slides) – Explore hundreds of high-resolution</u> • <u>Self-Guided Virtual Histology Lab – Free guided worksheets and practice exercises for identifying structures on your own. Self-Guided Histology Labs</u> <u>🎓 Educational Content & Tutorials</u> <u>🔍 Additional Slide & Atlas Sites</u>	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم		
Strategies	strategy	Description
	Lectures	☐ Delivery of core theoretical concepts in general and systemic histology ☐ Use of visual aids: histology slides, diagrams, and photomicrographs
	Laboratory Work	☐ Hands-on experience in tissue preparation and staining techniques (e.g., H&E, PAS, Masson's trichrome) ☐ Microscopic examination of normal tissues and common pathological specimens
	Case-Based Learning (CBL)	☐ Discussion of real or simulated clinical cases highlighting tissue pathology ☐ Interpretation of histological findings in a clinical context ☐ Development of diagnostic reasoning and problem-solving skills related to tissue structure and abnormalities
	Group Discussions	• Interactive sessions to encourage participation and peer learning • Analysis of histology slides, tissue sections,



		and lab reports • Collaborative problem-solving and identification of key histological features
	E-Learning and Virtual Microscopy	• Access to digital slide libraries and annotated histology atlases • Online quizzes and formative assessments to reinforce knowledge • Multimedia tutorials, recorded lectures, and interactive animations of tissue structure
	Self-Directed Learning	• ☐ Assigned readings from core and recommended histology textbooks ☐ Independent research on specific tissues, organs, and histological techniques ☐ Preparation of presentations, annotated slide reports, or short research summaries

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.



COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
<i>Topic I: Introduction to Histology</i>			
1	3	• Definition and scope of clinical laboratory □ Definition and scope of histology □ History and development of histology □ Importance of histology in medicine and biology	L01, L02
<i>Topic II: Cell Structure and Function</i>			
2	3	- □ Cell theory and organization - □ Cell organelles: nucleus, mitochondria, endoplasmic reticulum, Golgi apparatus, lysosomes - □ Cell membrane structure and transport mechanisms	L02, L03
<i>Topic III: Tissues of the Body y</i>			
3	3	- pithelial Tissue - B. Connective Tissue - C. Muscle Tissue - Nervous Tissue	L03
<i>Topic IV: Histology of Organ Systems</i>			
4	3	• □ Integumentary system: skin layers, hair, nails, glands □ Cardiovascular system: heart wall, blood vessels □ Respiratory system: trachea, bronchi, lungs □ Digestive system: esophagus, stomach, intestines, liver, pancreas □ Urinary system: kidney, ureter, bladder □ Reproductive system: male and female reproductive organs □ Endocrine system: thyroid, adrenal,	L04



		pituitary, pancreas ☐ Lymphoid system: lymph nodes, spleen, thymus	
Topic V: Special Techniques in Histology			
5	3	• Histochemical staining • Immunohistochemistry • Electron microscopy • Confocal and fluorescence microscopy	L05
Topic VI: Correlation with Pathology			
6	3	• • Basic tissue changes in diseases (inflammation, necrosis, degeneration) • Microscopic features of common diseases in each organ system	L06
Topic VII: Histological Basis of Tissue Engineering			
7	3	• Electron microscopy for detecting subcellular alterations • Diagnostic applications in nephrology, hepatology, and neurology	L07
Topic VIII: Histology of the Immune System at Cellular Level			
8	3	• ☐ Lymphoid follicles, germinal centers ☐ Histological identification of B cells, T cells, dendritic cells, macrophages	L08
Topic IX: Microcirculation and Angiogenesis			
9	3	• ☐ Capillary types, endothelial cell junctions ☐ Mechanisms of new blood vessel formation in health and disease	L010
Topic X: Histophysiology of Sensory Organs			
10	3	• Retina, cochlea, olfactory epithelium • Specialized sensory cells and receptor mechanisms	L09
Topic XI: Histology of the Blood-Brain Barrier (BBB)			
11	3	• ☐ Structural components: endothelial cells, astrocytes, pericytes	L011



		☐ Functional significance in CNS homeostasis	
Topic XII: Cell-Cell and Cell-Matrix Interactions			
12	3	☐ Adhesion molecules (cadherins, integrins) ☐ Signal transduction and tissue morphogenesis	LO12
Topic XIII: Stem Cells and Tissue Regeneration			
13	3	☐ Histological identification of stem cells ☐ Role in organogenesis and regenerative medicine	LO13
Topic XIV: Extracellular Matrix (ECM) Architecture and Dynamics			
14	3	- Composition, molecular organization, and remodeling of ECM - Role in tissue development, repair, and disease	LO14
Topic XV: Data Interpretation and Reporting			
15	3	- Correlation of lab results with clinical findings - Reference ranges and critical values - Lab report writing	LO14, LO15
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction to Histology Lab & Microscopy
Week 2	Tissue Preparation & Staining Techniques
Week 3	Cytology: Cell Structure
Week 4	Epithelial Tissue
Week 5	Connective Tissue – Loose & Dense
Week 6	Cartilage & Bone
Week 7	Blood & Lymph
Week 8	Muscle Tissue



Week 9	Nervous Tissue
Week 10	Integumentary System
Week 11	Digestive & Exocrine Glands
Week 12	Urinary & Reproductive System
Week 13	Endocrine System & Lymphoid Organs
Week 14	Special Staining & Revision
Week 15	Data Interpretation & Case

Learning Outcomes and Assessment Methods for "Histology " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Introduction & Histology	LO1, LO2	Lectures, Films, Discussions	Quizzes, Written Exam
Topic II : Light microscope, slides, handouts	LO2, LO3	Field Work, Lab, PBL	Lab Report, Quiz
Topic III Prepared slides, staining reagents	LO4, LO5	Lab Experiments, Research	Lab Report
Topic IV: Slides of epithelial cells, liver, kidney	LO6	Lectures, Case Studies	Quiz, Exam
Topic V Slides of skin, trachea, intestine	LO7	Diagrams, Case Studies	Homework, Seminar
Topic VI: Slides of dermis, tendon, lymph node	LO8	Lab, Research	Lab Report, Project
Topic VII: Muscle slides, heart tissue	LO9, LO10	Simulations, Calculations	Assignments, Exam
Topic VIII: Brain, spinal cord, peripheral nerve slides	LO11	Field Visit, Group Work	Field Report, Presentation
Topic IX: Skin slides, epidermis and dermis sections	LO12	Field Visit, Group Work	Field Report
Topic X: GI tract slides, liver, pancreas slides	LO13	Lab Experiment	Lab Report
Topic XI: Kidney, ovary, testis slides	LO14	Debates, Presentations	Essay, Project
Topic XII: Reporting	LO15	PBL, Writing	Final Report

Module Evaluation: -

Module Evaluation				
تقييم المادة الدراسية				
	Time/Nu	Weight (Marks)	Week Due	Relevant Learning



		Number			Outcome
Formative assessment (40%)	Quizzes	3	10% (10)	4,8,12	LO1–LO11
	Assignments	2	10% (10)	6,10	LO6, LO9, LO10
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)	14	LO14, LO15
	Field Visits Report	1	5% (5)	13	LO11, LO12
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO1–LO8
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Pathological analysis			Module Delivery	
Module Type				✓ Theory ✓ Lecture ✓ Lab ✓ Tutorial ✓ Practical ✓ Seminar	
Module Code					
ECTS Credits					
SWL (hr/sem)					
Module Level		3	Semester		
Department		Biology	College	College of science	
Module Leader	Hawraa Mahmood Murad		E-mail	Dr. hawraa @science.uoqasim.edu.iq	
Module Leader’s Acad. Title		Assistant Pof.	Module Leader’s Qualification		Msc.
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		01/02/2026	Version Number		1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) +
Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	45	Structured SWL (h/w)	3
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	45	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	90		
الحمل الدراسي الكلي للطالب خلال الفصل			

**Relation with other Modules:-**

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	Pathological Analysis is a foundational course in medical and biomedical sciences that focuses on the study of disease through the examination of organs, tissues, cells, and bodily fluids. The course explores the structural and functional changes that occur in the body as a result of disease processes and emphasizes the correlation between laboratory findings and clinical outcomes. Students are introduced to the fundamental mechanisms of disease, including cell injury, inflammation, infection, immune responses, genetic disorders, neoplasia (tumor development), and systemic pathology. The course covers both general pathology (basic disease mechanisms) and systemic pathology (diseases affecting specific organs and body systems).		
Module Aims أهداف المادة الدراسية	The aims of this module are to: 9- Provide foundational knowledge of disease mechanisms and pathological processes affecting cells, tissues, and organs. 10- Develop understanding of diagnostic principles used in histopathology, cytology, hematology, microbiology, and clinical chemistry. 11- Enhance practical laboratory skills in specimen handling, tissue preparation, staining techniques, and microscopic examination. 12- Promote analytical and critical thinking skills in interpreting laboratory results and correlating them with clinical data. 13- Introduce quality assurance and laboratory safety standards in pathological investigations. 14- Foster ethical awareness and professional responsibility in medical laboratory practice. 15- Prepare students for advanced study or professional careers in pathology, biomedical sciences, and related healthcare fields. 16-		
Module Learning Outcomes	CODE	Learning Outcomes	
	LO1	• Explain key mechanisms of disease, including cell injury, inflammation, immune responses, genetic disorders, and neoplasia.	



مخرجات التعلم للمادة الدراسية	LO2	• Describe morphological and functional changes associated with common pathological conditions.
	LO3	• Demonstrate competence in laboratory techniques, including tissue processing, staining methods, microscopy, and specimen handling.
	LO4	• Interpret laboratory data and pathological reports accurately and correlate findings with clinical presentations.
	LO5	• Differentiate between normal and abnormal histological and cytological features.
	LO6	• Apply principles of quality control, biosafety, and laboratory ethics in pathological investigations.
	LO7	• Communicate findings effectively using appropriate medical terminology in written and oral formats.
	LO8	• Explain key mechanisms of disease, including cell injury, inflammation, immune responses, genetic disorders, and neoplasia.
	LO9	• Describe morphological and functional changes associated with common pathological conditions.
	LO10	• Demonstrate competence in laboratory techniques, including tissue processing, staining methods, microscopy, and specimen handling.
	Indicative Contents المحتويات الإرشادية	1. Introduction to Pathology ○ Definitions and scope of pathology ○ Branches of pathology (histopathology, cytopathology, hematology, clinical chemistry, microbiology) ○ Role of pathology in disease diagnosis and patient management 2. Cell Injury and Adaptation ○ Causes and mechanisms of cell injury ○ Cellular adaptations (atrophy, hypertrophy, hyperplasia, metaplasia) ○ Reversible and irreversible cell damage ○ Necrosis and apoptosis 3. Inflammation and Repair ○ Acute and chronic inflammation ○ Chemical mediators of inflammation ○ Tissue healing and wound repair ○ Fibrosis and tissue remodeling 4. Hemodynamic Disorders ○ Edema, hyperemia, congestion ○ Thrombosis and embolism ○ Infarction and shock 5. Immunopathology ○ Immune responses and hypersensitivity reactions ○ Autoimmune diseases ○ Immunodeficiency disorders 6. Infectious Diseases ○ Bacterial, viral, fungal, and parasitic infections ○ Laboratory diagnosis of infectious diseases 7. Neoplasia ○ Benign and malignant tumors ○ Carcinogenesis and tumor progression ○ Tumor grading and staging 8. Systemic Pathology



- Cardiovascular system pathology
- Respiratory system pathology
- Gastrointestinal system pathology
- Renal system pathology
- Endocrine disorders
- Hematological diseases

9. **Diagnostic Techniques in Pathology**

- Tissue processing and staining techniques (e.g., H&E staining)
- Cytological examination
- Blood smear analysis
- Clinical chemistry investigations
- Molecular diagnostic methods

10. **Laboratory Management and Quality Control**

- Laboratory safety procedures
- Quality assurance systems
- Ethical and legal considerations in pathology practice

11. **Overview of the Immune System**

- Innate vs. adaptive immunity
- Roles of T lymphocytes, B lymphocytes, antibodies, and cytokines
- Antigen recognition and immune regulation

12. **Hypersensitivity Reactions**

- **Type I (Immediate)** – Allergic reactions (e.g., anaphylaxis, asthma)
- **Type II (Antibody-mediated)** – Cytotoxic reactions
- **Type III (Immune complex-mediated)** – Immune complex deposition diseases
- **Type IV (Delayed-type)** – Cell-mediated reactions

13. **Autoimmune Diseases**

- Mechanisms of autoimmunity (loss of self-tolerance)
- Organ-specific autoimmune disorders
- Systemic autoimmune disorders (e.g., systemic lupus erythematosus)

14. **Immunodeficiency Disorders**

- Primary (genetic) immunodeficiencies
- Secondary (acquired) immunodeficiencies (e.g., HIV infection)
- Opportunistic infections

15. **Transplant Rejection and Immunologic Tolerance**

- Types of graft rejection
- Mechanisms of immune-mediated graft damage



	Principles of immunosuppressive therapy
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Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	☐ Robbins and Cotran Pathologic Basis of Disease - Authors: Vinay Kumar, Abul K. Abbas, Jon C. Aster - A comprehensive reference covering mechanisms of disease and systemic pathology. - Widely regarded as a primary textbook in pathology courses worldwide. ☐ Robbins Basic Pathology - Authors: Vinay Kumar, Abul K. Abbas, Jon C. Aster - A more concise version of the main Robbins text, suitable for undergraduate medical and biomedical students. ☐ Wheater's Functional Histology	Yes
Recommended Texts	☐ Diagnostic Pathology (various organ-specific volumes) - A visually rich reference providing high-resolution images and practical diagnostic pointers for specific organ systems. ☐ Basic and Applied Histopathology - Focuses on histopathological features of disease with applied clinical correlations — ideal for lab work and microscopy practice. ☐ Color Atlas of Pathology - An illustrated atlas that reinforces visual recognition of pathological changes across systems.	Yes
Websites	<u>educational & Learning Resources</u> <u>Pathology Student – A clear, student-friendly pathology learning site with explanations and articles.</u>	



	• Pathology Bites – Free interactive pathology learning with image questions and quizzes. • WebPath (University of Utah) – Extensive pathology image library and tutorials covering gross and microscopic findings. • NUS Pathweb – Interactive pathology teaching resource with modules and virtual elements by National University of Singapore.
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Learning and Teaching Strategies		
استراتيجيات التعلم والتعليم		
Strategies	strategy	Description
	Lectures	□ Delivery of core theoretical concepts in general and systemic pathology □ Use of visual aids (histology slides, diagrams, clinical case examples) □ Integration of clinical correlations to enhance understanding
	Laboratory Work	□ Hands-on experience in tissue processing and staining techniques (e.g., H&E staining) □ Microscopic examination of normal and pathological specimens □ Blood smear analysis and interpretation □ Demonstration of laboratory diagnostic equipment
	Case-Based Learning (CBL)	Discussion of real or simulated clinical cases Interpretation of laboratory findings Development of diagnostic reasoning and problem-solving skills
	Group Discussions	• Interactive learning to encourage participation • Analysis of pathological slides and reports • Peer learning and collaborative problem-solving
	E-Learning and Virtual Microscopy	• Access to digital slide libraries • Online quizzes and formative assessments



		Multimedia tutorials and recorded lectures
	Self-Directed Learning	- Assigned readings from core and recommended textbooks - Independent research on specific pathological conditions - Preparation of presentations or short reports

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.				

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Topic I: Introduction to Pathological Analysis			
1	3	- Definition and scope of clinical laboratory science - Role in diagnosis, treatment, and patient monitoring - Types of pathological analysis: hematology,	L01, L02



		biochemistry, microbiology, immunology	
Topic II: Clinical Biochemistry			
2	3	- Temperature, Light, Water - Wind, Pressure, Soil - ☐ Enzyme analysis and liver function tests - ☐ Renal function tests and electrolytes - ☐ Lipid profile and metabolic markers - ☐ Blood glucose and endocrine markers	L02, L03
Topic III: Hematology			
3	3	- Thermometer, Hygrometer - Barometer, Dew Point Apparatus	L03
Topic IV: Immunology and Serology			
4	3	• Antibody and antigen detection • Autoimmune disease testing • Immunoassays (ELISA, Western blot)	L04
Topic V: Microbiology			
5	3	• Bacteriology: culture and sensitivity • Virology: viral identification and PCR • Mycology and parasitology	L05
Topic VI: Cytology			
6	3	• Preparation and staining of cell samples • Fine-needle aspiration (FNA) cytology • Pap smear and cancer screening	L06
Topic VII: Histopathology Laboratory Techniques			
7	3	• Tissue fixation and processing • Sectioning and staining (H&E, special stains) • Immunohistochemistry	L07
Topic VIII: Molecular Diagnostics			
8	3	• DNA/RNA extraction and PCR • Genetic mutation detection • Real-time PCR and sequencing applications	L08



Topic IX: Clinical Toxicology			
9	3	• Drug level measurement in blood/urine • Detection of toxins and poisons • Interpretation of toxicology reports	LO10
Topic X: Blood Banking and Transfusion Medicine			
10	3	- r-selected Species - K-selected Species □ Blood group typing and crossmatching - □ Screening for transfusion-transmissible infections - □ Component preparation and storage	LO9
Topic XI: Urinalysis and Body Fluids Analysis			
11	3	• Urine chemical and microscopic examination • Cerebrospinal fluid analysis • Pleural, peritoneal, and synovial fluid testing	LO11
Topic XII: Quality Assurance in Laboratory Practice			
12	3	• Internal and external quality control • Standard operating procedures (SOPs) • Lab accreditation and ISO standards	LO12
Topic XIII: Clinical Endocrinology Testing			
13	3	• Thyroid function tests (TSH, T3, T4) • Adrenal and pituitary hormone assays • Reproductive hormone analysis	LO13
Topic XIV: Point-of-Care Testing (POCT)			
14	3	• Glucose monitoring • Rapid infectious disease tests • Bedside coagulation tests	LO14
Topic XV: Data Interpretation and Reporting			
15	3	• Correlation of lab results with clinical findings	LO14, LO15



		• Reference ranges and critical values • Lab report writing	
Final Exam			

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to Pathological Analysis & Lab Safety
Week 2	Clinical Biochemistry – Basic Tests
Week 3	Hematology – Blood Collection & CBC
Week 4	Hematology – Blood Smear & Morphology
Week 5	Coagulation Tests
Week 6	Urinalysis & Body Fluids
Week 7	Clinical Microbiology – Bacteriology
Week 8	Clinical Microbiology – Bacteriology
Week 9	Immunology & Serology
Week 10	Cytology Techniques
Week 11	Histopathology Techniques
Week 12	Molecular Diagnostics
Week 13	Blood Banking & Transfusion Testing
Week 14	Clinical Toxicology & Endocrine Tests
Week 15	Data Interpretation & Case

Learning Outcomes and Assessment Methods for "Pathological analysis" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Introduction & Pathological analysis	LO1, LO2	Lectures, Films, Discussions	Quizzes, Written Exam
Topic II : Hematology –	LO2, LO3	Field Work, Lab, PBL	Lab Report, Quiz



Blood Collection & CBC			
Topic III : Hematology – Blood Smear & Morphology	LO4, LO5	Lab Experiments, Research	Lab Report
Topic IV: Coagulation Tests	LO6	Lectures, Case Studies	Quiz, Exam
Topic V: Urinalysis & Body Fluids	LO7	Diagrams, Case Studies	Homework, Seminar
Topic VI: Clinical Microbiology – Bacteriology	LO8	Lab, Research	Lab Report, Project
Topic VII: Immunology & Serology	LO9, LO10	Simulations, Calculations	Assignments, Exam
Topic VIII: Histopathology Techniques	LO11	Field Visit, Group Work	Field Report, Presentation
Topic IX: Clinical Toxicology & Endocrine Tests	LO12	Field Visit, Group Work	Field Report
Topic X: Clinical Toxicology & Endocrine Tests	LO13	Lab Experiment	Lab Report
Topic XI: Cytology Techniques	LO14	Debates, Presentations	Essay, Project
Topic XII: Reporting	LO15	PBL, Writing	Final Report

Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	3	10% (10)	4,8,12	LO1–LO11
	Assignments	2	10% (10)	6,10	LO6, LO9, LO10
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)	14	LO14, LO15
	Field Visits Report	1	5% (5)	13	LO11, LO12
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO1–LO8
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information				
معلومات المادة الدراسية				
Module Title	Environmental Pollution		Module Delivery	
Module Type			✓ Theory ✓ Lecture ✓ Lab ✓ Tutorial ✓ Practical ✓ Seminar	
Module Code				
ECTS Credits				
SWL (hr/sem)				
Module Level	3	Semester		
Department	Biology	College	College of science	
Module Leader	Laith Taha Mohammed		E-mail	laithtaha@science.uoqasim.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Msc.	
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	Name		e-mail	E-mail
Scientific Committee Approval Date	06/01/2026	Version Number	1.0	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) +
Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	45	Structured SWL (h/w)	3
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	45	Unstructured SWL (h/w)	3
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)			90
الحمل الدراسي الكلي للطالب خلال الفصل			

**Relation with other Modules:-**

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Ecology	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	This course provides a comprehensive introduction to environmental pollution, its sources, types, effects on ecosystems and human health, and control strategies. It covers air, water, soil, thermal, and radioactive pollution, with a focus on synthetic organic compounds, heavy metals, and eutrophication. The laboratory component emphasizes practical skills in water quality analysis, BOD/COD measurement, pH, turbidity, temperature, and field sampling techniques.		
Module Aims أهداف المادة الدراسية	17- To understand the fundamental concepts of environmental pollution and its classification. 18- To study the sources and types of pollution (air, water, soil, thermal, radioactive). 19- To analyze the effects of pollutants on ecosystems and human health. 20- To examine the impact of synthetic organic compounds (pesticides, detergents, plastics) and heavy metals. 21- To understand eutrophication and its consequences on aquatic systems. 22- To apply practical techniques for water quality assessment (BOD, COD, pH, turbidity). 23- To evaluate mitigation and control strategies for environmental pollution.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	CODE	Learning Outcomes	
	LO1	Define environmental pollution and classify its types.	
	LO2	Identify sources of air, water, soil, thermal, and radioactive pollution.	
	LO3	Explain the effects of pollution on ecosystems and human health.	
	LO4	Analyze the impact of synthetic organic compounds (pesticides, detergents, plastics).	



	LO5	Describe the sources and effects of heavy metals in the environment.
	LO6	Explain the process of eutrophication and its environmental consequences.
	LO7	Measure water temperature and explain its effect on oxygen solubility.
	LO8	Measure pH and interpret its significance in water quality.
	LO9	Measure turbidity and explain its impact on aquatic life.
	LO10	Determine Biochemical Oxygen Demand (BOD) and interpret water quality levels.
	1LO1	Perform Chemical Oxygen Demand (COD) analysis in water samples.
	2LO1	Conduct field sampling for water pollution assessment.
	3LO1	Apply pollution control strategies in urban and industrial contexts.
	4LO1	Interpret pollution data and write scientific reports.
	5LO1	Evaluate international treaties and policies on pollution control.
Indicative Contents المحتويات الإرشادية	Definition, classification, general effects :1. Introduction to Pollution Sources (industrial, vehicles), primary/secondary pollutants, health :2. Air Pollution effects Sources (domestic, industrial, agricultural), organic waste, oil spills :3. Water Pollution Pesticides, heavy metals, solid waste :4. Soil Pollution Power plants, decreased oxygen solubility, ecosystem disruption :5. Thermal Pollution Nuclear explosions, waste disposal, health risks :6. Radioactive Pollution Pesticides, detergents, plastics, VOCs :7. Synthetic Organic Compounds Lead, mercury, cadmium, bioaccumulation, biomagnification :8. Heavy Metals Nitrogen and phosphorus as limiting factors, algal blooms, dead :9. Eutrophication zones Temperature, pH, turbidity :10. Water Quality Parameters Measurement, interpretation, water quality levels :11. BOD and COD Sample collection, labeling, storage, transport :12. Field Sampling Techniques Wastewater treatment, recycling, green chemistry :13. Pollution Control Strategies International treaties, early warning systems :14. Environmental Policies Real-world pollution events, scientific report writing :15. Case Studies & Reporting	



Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	- Henry, J. G., Heinke, G. W., & Heinké, D. S. (2013). Environmental Science and Engineering (2nd ed.). CRC Press. - Manahan, S. E. (2010). Environmental Chemistry (9th ed.). CRC Press.	yes
Recommended Texts	- Miller, G. T., & Spoolman, S. (2015). Environmental Science (15th ed.). Cengage Learning. - Berg, L. R., & Hager, M. (2014). Introductory Botany: Ecology, Evolution & Plants (2nd ed.). Cengage Learning.	yes
Websites	U.S. Environmental Protection Agency (EPA) United Nations Environment Programme (UNEP) World Health Organization (WHO) – Water Quality Guidelines	

Learning and Teaching Strategies		
استراتيجيات التعلم والتعليم		
Strategies	Strategy	Description
	Lectures	Interactive PowerPoint presentations with diagrams, animations, and short videos.
	Laboratory Work	Hands-on experiments on BOD, COD, pH, turbidity, and temperature measurement.
	Field Sampling	Field trips to polluted sites for water and soil sample collection.
	Group Discussions	Student-led debates on pollution cases (e.g., oil spills, e-waste).
	Problem-Based Learning (PBL)	Case studies on eutrophication, industrial pollution, and policy failure.
	Scientific Films	Documentaries on pollution (e.g., Before the Flood, The True Cost).



Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Topic I: Introduction to Pollution			
1	4	- Definition, Classification - General Effects on Environment	L01, L02
Topic II: Air Pollution			
2	4	- Sources (Industrial, Vehicles) - Primary/Secondary Pollutants - Health Effects	L02, L03
Topic III: Water Pollution			
3	4	- Domestic, Industrial, Agricultural Sources - Oil Spills, Organic Waste	L02, L03
Topic IV: Soil & Thermal Pollution			
4	4	- Pesticides, Solid Waste - Power Plants, Oxygen Solubility	L02, L05
Topic V: Radioactive Pollution			
5	4	- Nuclear Explosions, Waste Disposal - Health Risks, International Treaties	L02, L015



Topic VI: Synthetic Organic Compounds			
6	4	– Pesticides, Detergents, Plastics – VOCs, Food Additives	L04
Topic VII: Heavy Metals			
7	4	– Lead, Mercury, Cadmium – Bioaccumulation, Biomagnification	L05
Topic VIII: Eutrophication			
8	4	– Nitrogen & Phosphorus as Limiting Factors – Algal Blooms, Dead Zones	L06
Topic IX: Water Quality Parameters			
9	4	– Temperature & Oxygen Solubility – pH Measurement and Significance	L07, L08
Topic X: Turbidity & Light Penetration			
10	4	– Nephelometer Use – Impact on Aquatic Plants	L09
Topic XI: BOD & COD Analysis			
11	4	– BOD Levels and Water Quality – COD Measurement Procedure	L010, L011
Topic XII: Field Sampling Techniques			
12	4	– Sample Collection, Labeling – Storage, Transport Methods	L012
Topic XIII: Pollution Control			
13	4	– Wastewater Treatment – Recycling, Green Chemistry	L013
Topic XIV: Environmental Policies			
14	4	– International Treaties – Early Warning Systems	L014
Topic XV: Case Studies & Reporting			
15	4	– Real Pollution Events – Scientific Report Writing	L014, L015
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر



	Material Covered
Week 1	Introduction to Lab: Safety, pollution sampling tools, field forms
Week 2	Measurement of Water Temperature and pH
Week 3	Measurement of Turbidity using Nephelometer
Week 4	BOD Test: Sample Collection and Incubation Setup
Week 5	BOD Analysis: Winkler Method for DO Measurement
Week 6	COD Analysis: Chemical Oxidation Procedure
Week 7	Heavy Metals Test: Colorimetric Analysis (e.g., Lead, Cadmium)
Week 8	Field Trip: Water Sampling from Polluted Site
Week 9	Synthetic Organic Compounds: Detection of Pesticides in Water
Week 10	Eutrophication Simulation: Nutrient Addition in Water Samples
Week 11	Data Analysis: BOD/COD Interpretation and Water Quality Levels
Week 12	Report Writing: Pollution Assessment Report
Week 13	Presentation: Group Project on Pollution Case Study
Week 14	Review of Lab Results and Final Adjustments
Week 15	Submission of Final Lab Reports

Learning Outcomes and Assessment Methods for "Biochemistry" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Introduction & Types	LO1, LO2	Lectures, Films	Quizzes, Exam
Topic II: Air & Water Pollution	LO2, LO3	Case Studies, PBL	Assignment, Seminar
Topic III: Synthetic Compounds	LO4	Research, Lab	Lab Report
Topic IV: Heavy Metals	LO5	Lab Experiment	Lab Report
Topic V: Eutrophication	LO6	Simulation, Discussion	Project
Topic VI: Water Quality	LO7, LO8, LO9	Lab Work	Lab Report
Topic VII: BOD & COD	LO10, LO11	Lab Experiment	Lab Report
Topic VIII: Field Sampling	LO12	Field Visit	Field Report



Topic IX: Pollution Control	LO13	PBL, Debate	Essay
Topic X: Policies	LO15	Research, Presentation	Presentation
Topic X I: Reporting	LO14	Writing	Final Report

Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	3	10% (10)	4,8,12	LO1–LO8
	Assignments	2	10% (10)	6,10	LO4, LO6, LO13
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)	14	LO13, LO14
	Field Visits Report	1	5% (5)	8	LO12
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO1–LO8
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

**"COURSE PORTFOLIO"**

Module Information					
معلومات المادة الدراسية					
Module Title	Cell biology			Module Delivery	
Module Type	Core			☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical Seminar	
Module Code	Bio3603				
ECTS Credits					
SWL (hr/sem)	100				
Module Level		3		Semester 6	
Department		Biology		College	College of science
Module Leader	Sura Abdulkhaleq Ameen		E-mail	suraaawadh@science.uoqasim.edu.iq	
Module Leader's Acad. Title		assistant professor		Module Leader's Qualification PhD	
Module Tutor	Name (if available)		e-mail	E-mail	
Peer Reviewer Name		Name		e-mail	E-mail
Scientific Committee Approval Date		01/02/2025		Version Number	1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	64	Structured SWL (h/w)	4.2
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	36	Unstructured SWL (h/w)	2.4
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)			
الحمل الدراسي الكلي للطالب خلال الفصل			

Relation with other Modules:-

Relation with other Modules



العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	
Module Aims أهداف المادة الدراسية	This study aims 1. Learns about cell organelles and their various functions. 2. Explains important cellular processes such as cellular respiration and protein translocation. 3. Relates the structure of organelles to their functions. 4. Explains the structure and function of the cell membrane and identifies major receptors. 5. Differs between plant and animal cells in terms of structural characteristics and mutations. 6. Focuses on the chemical composition of the cell. 7. Distinguishes between programmed cell death, cell necrosis, and cancer. 8. Identifies different cellular structures using light microscopes and images in practical lessons.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understanding the fundamental principles of cell theory (the cell is the basic unit of life). 2. Recognizing the precise structure and various functions of cell organelles (nucleus, mitochondria, plasma membrane, etc.). 3. Being able to compare and differentiate between prokaryotic and eukaryotic cells. 4. Understanding the mechanisms of cell division (mitosis and meiosis) and vital processes such as cellular respiration and photosynthesis.
Indicative Contents المحتويات الإرشادية	Cell biology studies the structure, function, and behavior of cells, the fundamental units of life. Key components include membrane-bound organelles (nucleus, mitochondria, ER, Golgi), plasma membrane, and cytoskeleton, along with processes like cellular metabolism, transport, division (mitosis/meiosis), and signaling, which collectively maintain homeostasis and enable growth.

Learning and Teaching Resources

مصادر التعلم والتدريس



	Text	Available in the Library?
Required Texts	- Steven_R_Goodman_MD_editor_Goodman's_Medical_Cell_Biology_Academic	yes
Recommended Texts		
Websites	https://www.nature.com/scitable/ebooks/cntNm-14749010 https://www.makktaba.com/2011/02/medicine-alternative-medicine-books.html	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	1. - Acquiring skills in distinguishing between eukaryotic and prokaryotic cells. 2. Understanding the history and development of cell biology, including the structure and functions of basic organelles in cells, and understanding cell division in different cell types. 3. Emphasizing the similarity in cell functions despite their specialized differences. 4. Enabling students to connect biochemical and physiological activities in living organisms. 5. Emphasizing the importance of the living cell and its products in modern applied fields. 6. Learning how to use different types of microscopes in the laboratory. 7. Enabling students to distinguish between programmed cell death, cell necrosis, and cancer.
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Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded



(0 – 49)	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Topic I: Introduction to cell			
1	2	Cell theory Methods of study cells	1-6
Topic II: - Definition of prokaryotic cells, Bacteria/Archaea".			
2	2	Definition of prokaryotic cells, Bacteria/Archaea"	1-3
Topic III: - The Eukaryotic cell			
3	2	organelles of eukaryotic cells, Yeasts as simple free living eukaryotes	3-6
Topic IV: - Cell junction plasma membrane			
4	2	– Plasma membrane transport processes – (cell-to-cell communication)"	2-3
Topic V: - Cytoplasm			
5	2	– Cytoplasm	1-6
Topic VI: - Definition of Viruses			
6	2	– Definition of Viruses	1-6
Topic VII: - The cell nucleus			
7	2	– Structure and function of nucleus, Nuclear envelope, Nucleolus, Nucleoplasm, Chromatin, Chromosomes,	2-3



Topic VIII:- Nucleic acids

8	2	– RNA – DNA Structure – Types of RNA: Ribosomal RNA (rRNA), Messenger RNA (mRNA), Transfer RNA (tRNA).	1-5
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Topic VIII I:- Apoptosis and Necrosis

9	2	– Apoptosis and Necrosis	5-7
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Topic VIII I:- The Cell Cycle and cell division

10	2	– The Cell Cycle and cell division	2-9
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Topic VIII:- Regulation of the cell cycle and Meiosis

11	2	Regulation of the cell cycle and Meiosis	
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Topic VIII:- Ribosomes, endoplasmic Reticulum: Rough Endoplasmic Reticulum

12	2	– Ribosomes, endoplasmic Reticulum: Rough Endoplasmic Reticulum	10-11
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Topic VIII:- Smooth Endoplasmic Reticulum and Golgi Apparatus,

13	2	– Smooth Endoplasmic Reticulum and Golgi Apparatus,	8-12
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Topic VIII:- Secretory Granules and Lysosomes and Proteasomes Gall Bladder.

14	2	– Secretory Granules and Lysosomes and Proteasomes	1-8
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Topic VIII:- Mitochondria and Peroxisomes

15	21	– Mitochondria and Peroxisomes	2-9
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Final Exam



Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Microscopes.
Week 2	Lab 2: Components of the Plant Cell Wall.
Week 3	Lab 3: Cell Structure.
Week 4	Lab 4: Plastids and Their Types.
Week 5	Lab 5: Study of Mitochondria.
Week 6	Lab 6: Types of Tissues.
Week 7	Lab 7: Fixation and Staining.
Week 8	Lab 8: Mitosis.
Week 9	Lab9: Practical Study and Examination of Mitosis.
Week 10	Lab 10: Meiosis.
Week 11	Lab 11: Midterm Exam.
Week 12	Lab 12: Autosomal Chromosomes.
Week 13	Lab 13: Sex Chromosomes.
Week 14	Lab 14: Cell Division.
Week 15	Lab 15: Analysis of Genetic Traits.

Learning Outcomes and Assessment Methods for " Cell biology " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Introduction to Cell Biology	1, 2, 9 and 10	Theoretical Lectures, Scientific Films, Small Group Discussions, Exploratory Work Teams	Quizzes, discussions during lectures, Written Exams, oral exams
Topic II: Cell Structure and Organelles	2, 3, 4, 7 and 9	Theoretical Lectures, Scientific Films, Report Writing, Small Group Discussions	Seminars, Major reports, Written Exams, oral exams
Topic III: Plasma Membrane Structure	3, 4, 5, 6 and 9	Problem Based Learning, Theoretical Lectures,	Quizzes, discussions during lectures, Written



and Function		Scientific Films, Small Group Discussions	Exams, Homework, oral exams
Topic IV: Membrane Transport Mechanisms	3, 4, 5, 6, 9 and 10	Problem Based Learning, Theoretical Lectures, Small Group Discussions, Scientific Films	Quizzes, Written Exams, discussions during lectures, Homework
Topic V: Endocytosis and Exocytosis	3, 4, 5, 6, 9 and 10	Theoretical Lectures, Scientific Films, Small Group Discussions, Report Writing	Seminars, Major reports, Written Exams, oral exams
Topic VI: Cell Communication and Signal Transduction	3, 4, 5, 6, 7, 8 and 9	Problem Based Learning, Theoretical Lectures, Scientific Films, Small Group Discussions	Seminars, Quizzes, Written Exams, Homework, oral exams
Topic VII: Cell Cycle and Cell Division	2, 4, 6, 7 and 11	Theoretical Lectures, Small Group Discussions, Scientific Films	Quizzes, discussions during lectures, Written Exams, Homework
Topic VIII: Apoptosis and Cell Death Mechanisms	3, 4, 6, 7 and 9	Problem Based Learning, Theoretical Lectures, Scientific Films	Seminars, Written Exams, oral exams
Topic IX: Stem Cells and Cell Differentiation	2, 4, 6, 7, 9 and 11	Theoretical Lectures, Report Writing, Small Group Discussions	Seminars, Major reports, Written Exams, oral exams

Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	1	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar		5% (5)		
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		



"COURSE PORTFOLIO"

Module Information معلومات المادة الدراسية			
Module Title	مناعة	Module Delivery	
Module Type	Core	☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical Seminar	
Module Code			
ECTS Credits	4		
SWL (hr/sem)			
Module Level	3	Semester	5
Department	Biology	College	College of science
Module Leader	Safa Hasan Radhi	E-mail	safa.h.radhi@science.uoqasim.edu.iq
Module Leader's Acad. Title	assistant professor	Module Leader's Qualification	PhD
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	6/2022/01	Version Number	1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) +
Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل		Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل		Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل			

**Relation with other Modules:-**

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	
Module Aims أهداف المادة الدراسية	1. Understand the scientific foundations of the immune system, including its cellular and molecular components and their protective roles. 2. Recognize the types of immunity (innate and adaptive) and the mechanisms of each. 3. Study the immune organs and tissues and their roles in immune responses. 4. Identify antigens and antibodies and understand their interactions. 5. Understand immune responses against microbes, viruses, and parasites. 6. Examine immune system disorders such as autoimmune diseases, hypersensitivity, and immunodeficiency. 7. Acquire basic laboratory skills in immunological techniques, such as ELISA and serological tests.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this module, students will be able to: 1. Explain the components of the immune system and their functions at cellular and molecular levels. 2. Differentiate between innate and adaptive immunity and describe their mechanisms of action. 3. Analyze the role of immune organs and tissues in defensive responses. 4. Interpret antigen-antibody interactions and their immunological significance. 5. Evaluate the role of immunity in combating microbes, infectious diseases, and parasites. 6. Diagnose immune system disorders, including autoimmune diseases, hypersensitivity, and immunodeficiency. 7. Apply basic immunological laboratory techniques, such as ELISA and serological assays. 8. Correlate immunological concepts with clinical applications in



	diagnosis and therapy
Indicative Contents المحتويات الإرشادية	• Introduction to Immunology: Definition, significance, and historical development. • Innate Immune System: Physical, chemical, and cellular barriers. • Adaptive Immune System: Humoral and cell-mediated immunity, mechanisms of action. • Immune Organs and Tissues: Thymus, spleen, lymph nodes, and bone marrow. • Antigens and Antibodies: Properties, types, and mechanisms of interaction. • Immune Responses to Microbes: Bacteria, viruses, fungi, and parasites. • Hypersensitivity and Autoimmune Diseases: Classifications, mechanisms, and clinical examples. • Immunodeficiency Disorders: Primary and acquired immunodeficiencies and their health impacts. • Immunological Techniques: ELISA, serological tests, and immune detection methods. • Immunology in Clinical Medicine: Vaccines, immunotherapy, and organ transplantation.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	-	yes
Recommended Texts	-	yes
Websites		

Grading Scheme



مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Historical reviews Topic I: -			
1-2	4	– Introduction – Historical reviews – Innate immunity	1-6
Antigens Topic II: - -			
3-4	4	– Adaptive or acquired immunity – Antigens (Ag)and antigenic determinants	1-3
Immunoglobulins Topic III: -			
5-6	4	– Immunoglobulins (Igs)Antibodies (Abs) – Major Histocompatibility Complex – (MHC) and Antigen Presentation	3-6
Complement System and Cytokines Topic IV: - -			
7-9	6	– Complement System and Cytokines – Immune Responses to Microbial Infections – hypersensitivity Reactions: Types I–IV	2-3
Topic V: - Autoimmune Diseases			



10	2	- Autoimmune Diseases and Immunodeficiency Disorders -	1-6
Topic VI: - Immunological Techniques			
11	2	- Immunological Techniques: ELISA, Serological Tests, Flow Cytometry	1-6
12	2	- Vaccines and Immunization Strategies	
13	2	- Immunotherapy and Transplantation Immunology	
Topic VII: - Assessment preparation			
14-15	4	- Revision and Case Studies - Final Review & Assessment preparation	2-3
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
Week	Material Covered
Week 1	Introduction to Immunology Lab, safety rules, laboratory equipment, and basic techniques
Week 2	Blood collection methods and preparation of serum and plasma
Week 3	Antigen–Antibody reactions: principles and types
Week 4	Agglutination tests (Slide and Tube methods)
Week 5	Precipitation reactions and immunodiffusion techniques
Week 6	Enzyme-Linked Immunosorbent Assay (ELISA): principles and applications
Week 7	Complement system tests and hemolysis assay
Week 8	
Week 9	Midterm practical exam



	Blood grouping (ABO and Rh typing)	Week 9
Week 10	Rapid immunochromatographic tests (ICT)	
Week 11	Immunoelectrophoresis and protein separation techniques	
Week 12	Autoimmune diseases detection (e.g., RF, CRP tests)	
Week 13	Hypersensitivity reactions (demonstration/experiments)	
Week 14	Flow cytometry (basic concept – demonstration if available)	
Week 15	Final practical exam	

Learning Outcomes and Assessment Methods for "Biochemistry" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Introduction to Immunology	Understand basic concepts of the immune system and its components	Interactive lectures, visual diagrams, class discussion	Short quizzes, oral questions
Cells of the Immune System	Identify types and functions of immune cells (B, T, macrophages, etc.)	Microscopy labs, case-based learning	Lab reports, practical exams
Innate Immunity	Explain mechanisms of innate defense (barriers, inflammation, complement)	Lecture + real-life examples	Written exams, quizzes
Adaptive Immunity	Differentiate between humoral and cellular immunity	Group discussion, concept mapping	Midterm exam
Antigens and Antibodies	Describe antigen structure and antibody classes/functions	Diagram-based teaching, problem-solving	Short answer exams
Major Histocompatibility Complex (MHC)	Understand role of MHC in antigen presentation	Visual explanation, videos	MCQ exams
Hypersensitivity Reactions	Classify types I-IV hypersensitivity and their mechanisms	Case studies, clinical correlation	Case-based questions
Autoimmunity	Explain causes and examples	Seminar	Assignments,



Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
	of autoimmune diseases	presentations	presentations
Immunodeficiency Disorders	Identify types and causes of immune deficiencies	Discussion, clinical examples	Written exam
Vaccines and Immunization	Understand vaccine types and mechanisms	Lecture + real-world applications	Quiz, final exam
Antigen-Antibody Reactions (Lab)	Perform basic immunological tests (ELISA, agglutination)	Laboratory training	Practical exam, lab report

Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)		
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		



"COURSE PORTFOLIO"

Module Information			
معلومات المادة الدراسية			
Module Title	Mycology I		Module Delivery
Module Type	Core	☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical Seminar	
Module Code	BIO-35128		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	3	Semester	5
Department	Biology	College	College of science
Module Leader	Shorooq Ali Mohammed	E-mail	Shorooq_ali@science.uoqasim.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	PhD
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	15/2/2026	Version Number	1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	64	Structured SWL (h/w)	4.2
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعياً	
Unstructured SWL (h/sem)	36	Unstructured SWL (h/w)	2.4
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعياً	
Total SWL (h/sem)			
الحمل الدراسي الكلي للطالب خلال الفصل			

**Relation with other Modules:-**

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	
Module Aims أهداف المادة الدراسية	1. Understand fundamental concepts and terminology in mycology. 2. Describe the structural organization of fungal cells and hyphae. 3. Differentiate between sexual and asexual reproductive mechanisms in fungi. 4. Explain the principles of fungal classification. 5. Recognize the ecological, industrial, and medical importance of fungi. 6. Identify environmental conditions influencing fungal growth.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Explain the general characteristics of fungi and distinguish them from other organisms. • Analyze fungal cell structure, including the cell wall and membrane components. • Classify fungi based on reproductive and morphological criteria. • Describe mechanisms of fungal growth and morphogenesis. • Discuss fungal pathogenicity and basic concepts of mycoses. • Evaluate the ecological and economic significance of fungi.
Indicative Contents المحتويات الإرشادية	This course introduces students to the fundamental principles of Mycology, including basic mycological terminology, history of mycology, general characteristics of fungi, fungal cell structure and ultrastructure, hyphal organization, growth and morphogenesis, reproduction (asexual and sexual), fungal classification, ecological roles, environmental factors affecting fungal growth, and an introduction to medical mycology.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	- Webster, J., & Weber, R. Introduction to Fungi.	yes



Recommended Texts	1. Alexopoulos, C.J., Mims, C.W., & Blackwell, M. Introductory Mycology. 2. Webster, J., & Weber, R. Introduction to Fungi. 3. Kirk, P.M., et al. Dictionary of the Fungi.	yes
Websites	https://www.indexfungorum.org/ https://www.speciesfungorum.org/ https://fungalgenera.org/	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	• Lectures and interactive discussions • PowerPoint presentations • Microscopic image analysis • Integration with laboratory demonstrations
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Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.



COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Topic I: Mycology.			
1	2	Introduction to Mycology and Basic Terminology	1-6
Topic II: -			
2	2	- History of Mycology	1-3
Topic III: -			
3	2	- General Characteristics and Importance of Fungi.	3-6
Topic IV: -			
4	2	- Fungal Cell Structure and Cell Wall Composition	2-3
Topic V:			
5	2	- Hyphae, Mycelium, and Hyphal Modifications.	1-6
Topic VI: -			
6	2	- Asexual Reproduction and Spore Types	1-6
Topic VII:.			
7	2	- Sexual Reproduction and Its Stages	2-3
Topic VIII:-			
8	2	- Fungal Classification (Based on Reproduction and Morphology)	1-5
Topic VIII I:-			
9	2	- Dimorphism in Fungi	5-7



Topic VIII I :-

10	2	– Modes of Nutrition and Ecological Relationships	2-9
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Topic VIII:-

11	2	– Environmental Factors Affecting Fungal Growth	
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Topic VIII:-

12	2	– Specialized Fungal Structures (Sclerotia, Rhizomorphs, Haustoria, etc.)	10-11
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Topic VIII:-

13	2	– Sporocarps and Spore Formation	8-12
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Topic VIII:-

14	2	– Introduction to Medical Mycology	1-8
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Topic VIII:-

15	21	– Classification of Mycoses and Laboratory Diagnosis	2-9
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Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to Mycology Laboratory & Safety Procedures
Week 2	Lab 2: Microscopy Techniques for Fungal Observation



Week 3	Lab 3: Preparation of Fungal Slides (Wet Mount & KOH Preparation)
Week 4	Lab 4: Observation of Fungal Structures (Hyphae, Mycelium, Spores)
Week 5	Lab 5: Study of Yeasts: Morphology and Budding
Week 6	Lab 6: Culture Media for Fungi (SDA, PDA) and Media Preparation
Week 7	Lab 7: Isolation and Culturing of Fungi from Environmental Samples
Week 8	Lab 8: Identification of Molds Based on Colony Morphology
Week 9	Lab9:Asexual Reproduction Structures (Conidia & Sporangia .
Week 10	Lab 10: Sexual Reproduction Structures in Fungi
Week 11	Lab 11:. Identification of Common Genera (Aspergillus, Penicillium)
Week 12	Lab 12: Study of Dimorphic Fungi (Morphological Changes) .
Week 13	Lab 13: Effect of Environmental Factors on Fungal Growth (Temperature, pH) .
Week 14	Lab 14:. Introduction to Medical Mycology (Sample Collection & Diagnosis)
Week 15	Lab 15:. taining Techniques in Mycology (Lactophenol Cotton Blue, Gram



	Stain)
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Learning Outcomes and Assessment Methods for "Mycology I " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I:	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
Topic II	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III:	3, 4, 5, 6 and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV:	3, 4, 5, 6,9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic V:	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI:	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII:	2, 4, 6, 7and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.



Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	1	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar		5% (5)		
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		



"COURSE PORTFOLIO"

Module Information معلومات المادة الدراسية					
Module Title	Plant Physiology			Module Delivery	
Module Type	Core			☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical Seminar	
Module Code	BIO-311				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level		3		Semester	
Department		Biology		College	
Module Leader		Mohanad Mohammed Sahib		E-mail	
Module Leader's Acad. Title		assistant professor		Module Leader's Qualification	
Module Tutor		Name (if available)		E-mail	
Peer Reviewer Name		Name		E-mail	
Scientific Committee Approval Date		01/02/2026		Version Number	
				1.0	

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	36	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	2.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

**Relation with other Modules:-**

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	
Module Aims أهداف المادة الدراسية	This study aims The student's comprehension of the concept of the course and his ability to distinguish between it and other sciences. 1. Addressing a comprehensive description of the various metabolism process in plant organs 2. Studying the vital processes that occur in the plant's body that transport the nutrients from rhizosphere zone and how the root system discriminates between different nutrients and absorbed them. 3. Basic and physiology of plant growth regulators. 4. study of photosynthesis and respiration process. 5.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The students understand different physiological mechanisms in the plant body. 1. Help the students to master the interaction and relationships between metabolism process in plant organs. 2. The development of student's skills for discriminate between the physiological and pathological disorders. 3. The students understand mode of action each physiological test. 4. Help the students to master the procedure of each physiological test. 5.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – Theoretical lectures Introduction to Plant Physiology. The important of water to plant life. The physical properties of water. The mechanisms of water transport from the root system across stem to leaf (ascent of sap) and



	describe different theories related to subject. Describe the theories and hypothesis related to how plant absorb nutrients from the soil. [10 hrs.] Transpiration and types of transpirations in different plants. Photosynthesis process in different plants as C3 and C4 and CAM metabolism. Respiration process in plant cell [18hrs] Plant growth regulators (plant hormones) these divide into three groups 1- Auxins 2- cytokines 3- gibberellins [3 hrs] Part B – Practical labs General safety instructions in the laboratory. Introduction to preparation of solutions. Fragility test 1. Fragility test 2. Total Red Blood Cell count. differential count. Estimation Hemoglobin. [18 hrs] PCV test. Platelets count. : ESR test. Bleeding time Test. Blood pressure. Physiological and pathological variation of Blood pressure. Blood groups. Respiratory test.[18 hrs.
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Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	- Guyton, A. and Hall, J.E. (2016). "Text book of physiology". 11th ed. Elsevier Saunders. China.	yes
Recommended Texts	- Barrett, K.; brooks, H.; Boitano, S. and Barman, S. (2010). "Ganong's review of Medical Physiology". 23 th edition. McGraw Hill Companies. New York	yes
Websites	- https://www.nature.com/subjects/animal-physiology https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/animal-physiology	



Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies

Expanding students' perceptions about this science and its contents . Various techniques were used such as. Data show , Microscope, Posters . Students do study the following fields: An introduction to the study of Physiology of the body. Definition of body systems and understands how this system work under normal conditions. Definition of the techniques uses to estimation of body parameters. Study the disorders of this systems physiology and study the diseases results from disorders in homeostats. The relationships between the different body systems. This will be achieved through lectures, labs, and interactive tutorials and by types of practical diagnostic methods and involving some sampling activities that are interesting to the .students

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
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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.



COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Topic I: Introduction to plant Physiology.			
1	2	Introduction to plant Physiology.	1-6
Topic II: - plant water relations.			
2	2	Diffusion, osmosis , concept of water potential, imbibition.	1-3
Topic III: - the Absorption of water.			
3	2	– The mechanisms of water absorption. Active and non-active absorption.	3-6
Topic IV: - absorption of mineral nutrients.			
4	2	Passive absorption mechanism. – Active absorption mechanism.	2-3
Topic V: - photosynthesis I.			
5	2	– Light reactions	1-6
Topic VI: - photosynthesis II.			
6	2	– Dark reactions.	1-6
Topic VII: - respiration.			
7	2	– Glycolysis – Krebs cycle – Electrons transport chains	2-3
Topic VIII:- plant hormones			
8	2	– Auxins.	1-5
Topic VIII I:- plant hormones.			
9	2	– cytokines.	5-7
Topic VIII I:- plant hormones			
10	2	– gibberellins	2-9



Topic VIII:- inhibitor hormones.

11	2	– Absciscic acid.	
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Topic VIII:- stress physiology.

12	2	– Stress physiology.	10-11
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Topic VIII:- senescence physiology .

13	2	– Aging in plants.	8-12
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Topic VIII:- tropism

14	2	– Tropism in plants	1-8
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Topic VIII:-

15	21	–	2-9
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Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: physiological solution and preparation methods
Week 2	Lab 2: Quantitative estimation of Chlorophyll pigments.
Week 3	Lab 3: Fresh weight of the vegetative groups
Week 4	Lab 4: Percentage of seedling emergence
Week 5	Lab 5: Measurement of plant leaf area
Week 6	Lab 6: Estimation of some nutrients in leaves
Week 7	Lab 7: Photo-pigments separation
Week 8	Lab 8: Spectrophotometer of photo-absorption
Week 9	Lab9: Exam



Week 10	Lab 10: Estimation of some nutrients in roots
Week 11	Lab 11: Quantitative estimation of plant proteins.
Week 12	Lab 12: Experiments of transpiration
Week 13	Lab 13: Experiments of plant hormones
Week 14	Lab 14: Enzyme activity in plant
Week 15	Lab 15: Mineral nutrition of plants

Learning Outcomes and Assessment Methods for " Animal Physiology " Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Introduction to Physiology.	4, 9 and 10	Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams.	quizzes, Major reports, discussions during lectures, Written Exams, oral exam.
Topic II Cell physiology.	3, 4, 7 and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, Exploratory Work Teams.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic III: The mechanisms of transports across the cell membrane.	3, 4, 5, 6 and 9	Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: - Phagocytosis mechanism. Pinocytosis mechanism.	3, 4, 5, 6, 9 and 10	Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams.
Topic V: erythrocyte disorders.	3, 4, 6, 7, and 9	Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: Functions of all types of Leukocytes.	3, 4, 5, 6, 7, 8, and 9	Problem Based Learning, Report Writing, Field Visits, Scientific Trips, Theoretical Lectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII: Functions of the Digestive System.	2, 4, 6, 7 and 11	Problem Based Learning, Theoretical Lectures, Small Group Discussions.	quizzes, discussions during lectures. Written Exams, Home work.



Module Evaluation: -

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	1	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar		5% (5)		
	Field Visits Report	1	5% (5)	10	LO # 5, 9, 11.12.13,14 and 15
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO # 1-10
	Final Exam (50%)	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		



"COURSE PORTFOLIO"

Module Information						
معلومات المادة الدراسية						
Module Title	Aquatic and Soil Microbiology			Module Delivery		
Module Type	Core			Theory ✓Lecture Tutorial Practical Seminar ✓Lab		
Module Code	BIO-324					
ECTS Credits	4					
SWL (hr/sem)	100					
Module Level		3		Semester		7
Department		Biology		College	College of science	
Module Leader	Wurood Amer			E-mail	wurood-amer@science.uoqasim.edu.iq	
Module Leader’s Acad. Title		Assistant Lecturer		Module Leader’s Qualification		Msc.
Module Tutor	Name (if available)			e-mail	E-mail	
Peer Reviewer Name		Name		e-mail	E-mail	
Scientific Committee Approval Date		01/02/2026		Version Number		1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures) + Unstructured SWL (h/w) .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	64	Structured SWL (h/w)	4
الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem)	36	Unstructured SWL (h/w)	2
الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem)	100		
الحمل الدراسي الكلي للطالب خلال الفصل			

**Relation with other Modules:-**

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

COURSE DESCRIPTION:	
Module Aims أهداف المادة الدراسية	1. To develop problem solving skills and understanding of water and soil theory through the application of techniques. 2. To understand some application of water pollution. 3. This course deals with the basic concept of aquatic microorganisms 4. This is the basic subject for all application in development of dangerous types of bacterial diseases by water. 5. To understand application deal with water treatment 6. To know and study the most important microbial species that can be isolated from different soils Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how to collect sample from all type of water . 2. study of some chemical and physical test of water . 3. Recognize some isolation and diagnosis of bacteria from water .. 4 Recognize some isolation and diagnosis of other microorganisms such as fungi and parasites from water. 5 Define as the water pollution by microorganisms . 6 Identify the basic methods for water treatment. 7 Identify methods of soil , profile and isolation and diagnosis different type of microorganisms. 8 Identify some roles of microorganisms in elements cycles in nature .
Indicative Contents المحتويات الإرشادية	The indicative contents of an aquatic and soil microbiology module may include: 1. Introduction to microbial ecology: The role of microorganisms in aquatic and soil ecosystems, nutrient cycling, and microbial diversity. 2. Microbial growth and metabolism: Factors affecting microbial growth and metabolism in aquatic and soil environments, including temperature, pH, and nutrient availability. 3. Microbial interactions: The interactions between microorganisms in aquatic and soil environments, including competition, symbiosis, and predation. 4. Aquatic microbiology: The microbiology of freshwater and marine environments, including microbial communities, microbial roles in nutrient cycling, and microbial interactions with other aquatic organisms. 5. Soil microbiology: The microbiology of soil environments, including the soil microbial community, nutrient cycling, and the role of microorganisms in soil health. 6. Microbial methods and techniques: Techniques for studying aquatic and soil



	microorganisms, including culturing, microscopy, and molecular methods. 7. Microbial biotechnology: Applications of aquatic and soil microbiology in biotechnology, including bioremediation, biogeochemical cycling, and bioenergy production. 8. Case studies: Real-world examples of aquatic and soil microbiology, including the impact of microorganisms on aquatic and soil environments, and the use of microbial technologies in environmental management. The specific contents of an aquatic and soil microbiology module may vary depending on the level of the course, the focus of the curriculum, and the goals and objectives set by the course instructor or curriculum designer.
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Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	- World Health Organization (2020) Guidelines for the production and control of inactivated oral cholera vaccines . W.H.O Technical Report .	yes
Recommended Texts	- World Health Organization (2009) Health Topics . Diarrhoea F, Najafi A, Mehdinejadiani S, Sargolzaei Aval F. (2017). Multipotent Stem Cell and Current Application. Acta Med Iran. 55(1): 6 23.	yes
Websites		



Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies

The learning and teaching strategies used in an aquatic and soil microbiology module may include:

- 1- Lectures: Lectures can be used to provide an overview of aquatic and soil microbiology concepts and to introduce new topics.
- 2- Laboratory work: Laboratory work can be used to provide hands-on experience with aquatic and soil microbiology techniques, such as culturing, staining, and molecular methods.
- 3- Discussions: Discussions can be used to encourage critical thinking and analysis of aquatic and soil microbiology concepts, and to promote class participation.
- 4- Case studies: Case studies can be used to apply aquatic and soil microbiology concepts to real-world scenarios and encourage problem-solving skills.
- 5- Online resources: Online resources, such as videos, interactive simulations, and online quizzes, can be used to provide additional learning opportunities and reinforce aquatic and soil microbiology concepts.
- 6- Group projects: Group projects can be used to encourage collaboration and teamwork, and provide opportunities for students to apply aquatic and soil microbiology concepts to real-world problems.
- 7- Field trips: Field trips to aquatic and soil environments or to research institutions can be used to provide students with hands-on experience and exposure to real-world aquatic and soil microbiology research.
- 8- Assessment and feedback: Assessment and feedback can be used to evaluate student learning and provide feedback to help students improve their understanding of aquatic and soil microbiology concepts.

The specific learning and teaching strategies used in an aquatic and soil microbiology module may vary depending on the goals and objectives of the module, the level of the course, and the resources available. The strategies used should be chosen to best meet the needs of the students and facilitate their learning and understanding of aquatic and soil microbiology concepts.

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(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.

COURSE SCHEDULE: -

Week	hours	Topics Covered	Learning Outcomes
Topic I: Water microbiology . Importance of aquatic microorganisms			
1	4	Water microbiology . Importance of aquatic microorganisms	L01, L02
Topic II: Importance of aquatic microorganisms			
2	4	- Importance of aquatic microorganisms	L02, L03
Topic III: Type of Aquatic microorganisms			
3	4	- Type of Aquatic microorganisms	L02, L03
Topic IV: Bacteria and Fungi			
4	4	- Bacteria and Fungi	L02, L05
Topic V: Protozoa and viruses			
5	4	- Protozoa and viruses	L02, L015
Topic VI: Biotic and A Biotic factors			
6	4	- Biotic and A Biotic factors	L04
Topic VII: Water borne diseases and Water Treatment			
7	4	- Water borne diseases and Water Treatment	L05
Topic VIII: Drinking water and Biological indicators of pollution .			
8	4	- Drinking water and Biological indicators of pollution .	L06
Topic IX: Introduction of Soil Microbiology			
9	4	- Introduction of Soil Microbiology	L07, L08
Topic X: Soil profile and Soil texture , structure (Types of soil Textural triangle Soil structure)			
10	4	- Soil profile and Soil texture , structure (Types of soil Textural triangle Soil	L09



		structure)	
Topic XI: Soil Microflora			
11	4	– Soil Microflora	LO10, LO11
Topic XII: Organic matter Non living organic matter can be considered to exist in two distinct pools Soil Living organic matter (Soil Biota)			
12	4	– Organic matter Non living organic matter can be considered to exist in two distinct pools Soil Living organic matter (Soil Biota)	LO12
Topic XIII: Element cycles (Carbon cycle and Steps of the Carbon Cycle)			
13	4	– Element cycles (Carbon cycle and Steps of the Carbon Cycle)	LO13
Topic XIV: Nitrogen cycle and Sulfur cycle			
14	4	– Nitrogen cycle and Sulfur cycle	LO14
Topic XV: Sulfur cycle and Phosphorus Cycle			
15	4	– Sulfur cycle and Phosphorus Cycle	LO14, LO15
Final Exam			

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab1: Introduction to soil Microbiology
Week 2	Lab 2: Sterilization.
Week 3	Lab 3: deal with samples and culture medium
Week 4	Lab 4: isolation and diagnosis of bacteria from water
Week 5	Lab 5: water standard and properties according WHO
Week 6	Lab 6: biological indicators of water pollution
Week 7	Lab 7: biological tests (MPN , TCAB , TCB, TFB tests).
Week 8	Lab 8: isolation and diagnosis of bacteria from soil
Week 9	Lab 9 :Collection of soil sample



Week 10	Lab 10: isolation and Enumeration of soil Microbiology
Week 11	Lab 11: Microbial decomposition of crude oil
Week 12	Lab 12: Melanin pigment production
Week 13	Lab 13: General Examination of microorganisms
Week 14	Lab 14 : Isolation of Fruiting Gliding bacteria
Week 15	Lab 15 : The role of soil microorganisms in changes elements carbon cycle

Learning Outcomes and Assessment Methods for "Biochemistry" Course.

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: Water microbiology . Importance of aquatic microorganisms	LO1, LO2	Lectures, Films	Quizzes, Exam
Topic II: Importance of aquatic microorganisms	LO2, LO3	Case Studies, PBL	Assignment, Seminar
Topic III: Type of Aquatic microorganisms	LO4	Research, Lab	Lab Report
Topic IV: Bacteria and Fungi	LO5	Lab Experiment	Lab Report
Topic V: Protozoa and viruses	LO6	Simulation, Discussion	Project
Topic VI: Biotic and Abiotic factors	LO7, LO8, LO9	Lab Work	Lab Report
Topic VII: Water borne diseases and Water Treatment	LO10, LO11	Lab Experiment	Lab Report
Topic VIII: Soil Microflora	LO12	Field Visit	Field Report
Topic IX: Nitrogen cycle and Sulfur cycle	LO13	PBL, Debate	Essay
Topic X: Introduction of Soil Microbiology	LO15	Research, Presentation	Presentation
Topic X I: Reporting	LO14	Writing	Final Report

Module Evaluation: -

Module Evaluation تقييم المادة الدراسية
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As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	3	10% (10)	4,8,12	LO1–LO8
	Assignments	2	10% (10)	6,10	LO4, LO6, LO13
	Projects / Lab.	1	5% (5)	Continuous	
	Seminar	1	5% (5)	14	LO13, LO14
	Field Visits Report	1	5% (5)	8	LO12
	Discussions During Lectures				
Summative assessment	Midterm Exam (10%)	2 hr	10% (10)	8	LO1–LO8
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		