MODULE DESCRIPTION FORM

Module Information

Module Title	**General Biology**	**Module Delivery**	
Module Type	**Basic**	☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**ENV101**		
ECTS Credits	8		
SWL (hr/sem)			

Module Level	UG1	**Semester of Delivery**	1
Administering Department	Department of Environmental Health	**College**	College of Environmental Science and Technologies
Module Leader	Dr.Rehab A.H.Al-baker	**e-mail**	Rehsbio39@uomosul.edu.iq
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor	Dr. Mayada Ahmed AL-Taii	**e-mail**	maysbio55@uomosul.edu.iq
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date		**Version Number**	1.0

Relation with other Modules

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

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	**1- The study of general biology aims to introduce the student to the groups of living organisms and the nature of their structural parts.** **2- Studying the cellular structures according to the type of organism.** **3- Knowing how they spread and distribute in the surrounding environment and their interaction with it.**
Module Learning Outcomes	**1- Learn about biology, its branches, and its importance to humans and the environment** **2- Distinguish different cell shapes and their diversity according to the type of organism.** **3- Studying the chemical nature of cellular components.** **4- Understanding the difference between eukaryotic and prokaryotic organisms.** **5- Studying the process of cell division and growth** **6- identify the mechanism of formation the reproductive structures in higher organisms.** **7-Knowing the basics of classification and scientific naming of eukaryotic organisms.** **8- Distinguishing the phylum's and families of the animal and plant kingdoms .** **9-Clarifying the different feeding methods in animals and the process of energy production and metabolism.** **10- Explain the nutritional metabolic activities in plants.** **11- Studying the nature of the relationship between species of organisms and their surrounding environment.**

Indicative Contents	**Indicative content includes the following:**

Learning and Teaching Strategies	
Strategies	**The main strategy that will be adopted in presenting this course is to encourage students to read and discuss, and to provide the student with the skill of scientific observation and description of the phenomenon, while improving their critical thinking skills at the same time. This will be achieved through examinations, daily discussions, and through hands-on observations in laboratory experiments that include some sampling activities and examination of specimens and microscopic slides of the subject.**

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (hr./sem.)		**Structured SWL (hr./w)**	
Unstructured SWL (hr./sem.)		**Unstructured SWL (hr./w)**	
Total SWL (hr./sem.)			

Module Evaluation

تقييم المادة الدراسية

		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
	Quizzes		20% (10)	Lab.	LO #

Formative assessment				Lec.	LO #
	Assignments		10% (10)		LO #
	Projects / Lab.		10% (10)		All
	Report				
Summative assessment	**Midterm Exam**	1 hr.	10% (10)	7	LO #
	Final Exam	3 hr.	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	**Introduction to biology : its Branches , Development and Importance**
Week 2	**The living Organisms Kingdoms, Classification and nomenclature**
Week 3	**Characteristics of Living Organisms , Growth , Movement and Reproduction**
Week 4	**Prokaryotic microorganisms : Bacteria , Fungi and viruses**
Week 5	**The cell theory : the Shape and Description of Cells**
Week 6	**The Cell Organelles 1**
Week 7	**The Cell Organelles 2**
Week 8	**The Plasma membrane and its Functions**
Week 9	**The Cell Division**
Week 10	**The Plant Tissues**
Week 11	**The Animal Tissues**
Week 12	**Hormonal Coordination**

Week 13	**The Cellular Nutrition , Respiration and Excretion**
Week 14	
Week 15	
Week 16	**The final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	**General Instructions about occupational safety and laboratory work.**
Week 2	**Microscope and its components**
Week 3	**Temporary and Fixed Cells Slides**
Week 4	**Estimating the dimensions of cells and organelles**
Week 5	**Models of Plant Kingdom**
Week 6	**Models of Animal Kingdom**
Week 7	**Cells : plant and animal types**
Week 8	**Cellular Organelles**
Week 9	**Med final**
Week 10	**Plasma membrane**
Week 11	**Cell division**
Week 12	**Meristemic tissue + parenchyma + sclerenchyma**
Week 13	**Epidermis + xylem + phloem + vascular tissue**
Week 14	**Animal tissue**
Week 15	**Final exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	علم الاحياء ج1 ، ج2 . لجنة من وزارة التعليم العالي والبحث العلمي	
Recommended Texts		
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.

Module Information معلومات المادة الدراسية					
Module Title	Ecology			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UoM				
ECTS Credits	6.00				
SWL (hr./sem.)					
Module Level	First		**Semester of Delivery**	1	
Administering Department	Enviromental health		**College**	Enviromental Sciences and Technologies	
Module Leader	**Shaymaa Khaleel Abdullah** اشرف صديق الياس محمد		**e-mail**	drshaymaakhleel@uomosul.edu.iq ashraf.saddik@uomosul.edu.iq	
Module Leader's Acad. Title	**A.Prof.** **A. Prof.**		**Module Leader's Qualification**	**Ph.D** **Master**	
Module Tutor	محمد فخر الدين محمد اشرف صديق الياس		**e-mail**	ashraf.saddik@uomosul.edu.iq	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	1/10/2023		**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 Aims	

	. The aim of this course is to develop basic skills and knowledge to raise issues related to the knowledge of ecology and its associated living and non-living components and to diagnose the types of pollutants for the purpose of environmental sustainability and thus create an environment for the living of vital components, and to provide modern technologies for legalization and waste management and methods of disposal and treatment. Introducing the concepts of urbanization and its impact on the natural water cycle, through which the student will be introduced to modern scientific methods for protecting the environment from pollution and preserving natural resources from pollution such as water, air and soil.
Module Learning Outcomes	**. On completion of the course, students are expected to be able to:** 1. Determine the basic principles of ecology. 2. Identify the challenges facing the types of living and non-living components. 3. Determine the basic components for characterizing the natural and nonnatural resources of the environment 4. Identify and analyze the cycle of elements in nature. 5. Describe the principle of endurance laws in the environment 6. Describe the different components of an environmental system. 7. Describe the concepts to determine the value of influencing factors of importance as determinants of living in the environment. 8. Explain how the balance in the ecosystem provides good proucvity in various resources 9. Explain and estimate food chains and their impact on the community of organisms 10. Explain the theatrical fountains and main principles of sustainable development and their application to environmental resources. 11. Understanding the main trends in the components of society and their impact on balance and sustainability. 12. Understand the complex interaction between living and non-living components of an ecosystem 13. Understand how economic principles can guide the planning and allocation of water resources. 14. Analyze and es□mate Ecological Pollu□on for agricultural, hydropower, domestic, environmental and other uses. 15. Integra□on of informa□on from a range of disciplines into a comprehensive picture of the issue of water resource management. 16. Evaluation of pollutant treatment strategies through different criteria. 17. Clarifying waste treatment and recycling methods 18. Develop a sound understanding of the principles and issues related to the conservation and management of water, soil and air. 19. Applying skill in solving problems facing the management of environmental resources.
Indicative Contents	**1-2 Week (6 hours)**

	Concepts and definitions of ecology Ecology" - prief history - Definition of Ecology - The importance of environmental science - The relationship of ecology with other sciences - First: the division of ecology for the purposes of scientific research 1 - The division depends on the nature of living and includes: - Aquatic Ecology - (Marine Ecology - Estuarine Ecology- Fresh water Ecology-) - Terrestrial Ecology - Third: the division based on the number and type of organism - Fourth: the division of ecology through its relationship to other sciences - Fifth: The division of ecology into the science of ecology of plants and animals **3-4 Week (6 hours)** ***Development of water resources*** Ecosystem - Terrestrial ecosystems (land), aquatic ecosystems - - Structure of Ecosystem: (Abiotic components- Biotic components) - Producer Organisms, consume, and Decompose - Micro Ecosystem – Incomplete Ecosystems - Concepts related to gender and individual - Habitat and Ecological Niche - Ecological equivalent- Environmental Stability- - Biogeochemical Cycles: - Hydrologic cycle:- Water – - Gaseous cycles:- Nitrogen- Carbon Cycle - Sedimentary cycles: Phosphorus **5-6 Week (6hours)** ***Management of environmental systems*** - Tolerance laws & limiting factors: - - Liebig's law of the minimum - - Shelford's law of the maximum - Combined concept of limiting factors - Important influencing factors as determining factors - (Temperature- Humidity- Light- Light

	intensity- Gases- Soil- Salinity- PHWind- Nutrients- Fires) **7-9 Week(9 h.)** ***The laws of ecology*** - Productivity - Gross primary productivity, Net primary productivity, Net community productivity, Secondary productivity, - Factors determining productivity - - Energy flow - Methods for measuring productivity - Food chains - Nutritional level - Food webs - Trophical structure - ecological pyramids - - Levels of study in environmental Science **10 week (3 h.)** ***Productivity and its levels in the food web*** Community 7, 9, 14, 20, and 24 - Relationships between organisms in the community - Ecological Succession - Ecological pollution ***Identification of pollutants and methods of treatment and analysis in air, water and soil*** **11week (3)** **Air pollution** - Layers of the atmosphere - The main sources of pollution - Types of air pollutants **12 week (3)** **Global air pollutants:** - Global Warming - The ozone layer in the atmosphere - - Radiation Pollution - Biological effects of radiation - Smoking - Methods of treatment and reduction of air pollution **13week (3h.)** **Water pollution** - The physical and chemical properties of water - The main factors leading to water pollution - Methods of introducing pollutants into water - Water pollutants

	- Methods of treatment and reduction of water pollution **14-15 week (8 h.)** **Identification of pollutants and methods of treatment and analysis in air, water** **Soil pollution** - Sources of soil pollution: - Agricultural chemicals - Domestic and industrial waste - Acid rains - Heavy metals

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**The main strategy that will be adopted in presenting this course is to encourage students to read and discuss, and to provide the student with the skill of scientific observation and description of the phenomenon, while improving their critical thinking skills at the same time. This will be achieved through daily and quarterly examinations, daily discussions, and through hands-on observations in laboratory experiments that include some sampling activities and examination of specimens .**

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (hr./sem.)	78	**Structured SWL (hr./w)**	5
Unstructured SWL (hr./sem.)	72	**Unstructured SWL (hr./w)**	4
Total SWL (hr./sem.)	150		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5,10	5,6 and 7
	Assignments	2	10% (10)	2,21	8
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	5

Summative assessment	**Midterm Exam**	2 hr.	10% (10)	7	2,1
	Final Exam	2 hr.	50% (50)	16	All
Total assessment			100% (100 Marks)		

	Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
eek	**hours**	**Material Covered**
1		**Ecology**
2		**Ecosystem**
3		**Physico-chemical Environmental Parameters**
4		**Hydrologic & Biogeochemical Cycles**
5		**Sedimentary Cycle**
6		**Energy Flow in Ecosystem**
7		**Productivity**
8		**Food & Web Chains**
9		**Limiting Factors & Tolerance Laws**
10		**Population**
11		**urvivorship Curves**
12		**Population Growth**
13		**Community**
14		**Ecological Interactions**
15		**Types of Ecological Interactions**
		Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	**Instructions and laboratory safety**
Week 2	**Lab 2: Introduc□on to Agilent VEE and PSPICE**
Week 3	**Lab3 Levels of organiza□on in an ecosystem, Types of biomes**
Week 4	**Lab4 :A bio□c factors**

Week 5	**Lab5: temperature, importance of temperature, temperature devices**
Week 6	**Lab6: Light or solar irradiance**
Week 7	**Lab 7: Water flow**
Week 8	**Lab8: The Dew**
Week 9	**Lab9: The Air**
Week 10	**Lab 10: The Soil**
Week 11	**Lab 11: Chemical factors, pH**
Week 12	**Lab 12: Methods for measuring electrical conduc□vity**
Week 13	**Lab 13: Method for measuring carbonates in soil**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	- "Environmental Science" edited by Hussein Ali Al-Saadi - Theses and treatises for postgraduate students - World Environment - United Nations - World Environment Organization - Global Health Organization	Yes
Recommended Texts	- Environmental Threats, George Kadi - Environment and its problems, Rashid Al-Hamad - United Nations Environment Organization -The role of international organizations in protecting the Environment	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
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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
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Learning Outcomes and Assessment Methods for " Ecology " Cours

Topics Covered	**Learning Outcomes**	**Strategies for Achieving Outcomes**	**Assessment Methods**
Topic I: **Concepts and definitions**		Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams	quizzes, Major reports, discussions during lectures, Written Exams, oral exam
Topic II : **Developmen of water resources**		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: - Management of environmental systems		Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.

***Topic IV:* - The laws of Ecology**		Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams
***Topic V:* - Productivity and its levels in the food web**		Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI:* - *Environmental pollution and the demanfor a clean environment		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*: - Identification of pollutants and methods of treatment and analysis in air, water and soil**		Problem Based Learning, Theoretical Lectures, Small Group Discussions	quizzes, discussions during lectures. Written Exams, Home work.

Module Information

معلومات المادة الدراسية

Module Title	**English Language**	**Module Delivery**	
Module Type	**Basic**	☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOM102**		
ECTS Credits	**2**		
SWL (hr/sem)	**50**		

Module Level	1	**Semester of Delivery**	2
Administering Department	Type Dept. Code	**College**	Type College Code
Module Leader	Wissam Saeed	**e-mail**	
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	M.A.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	21/06/2023	**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 Aims أهداف المادة الدراسية	1. To support the highest degree of academic achievement by students who are not native speakers of English. 2. To improve basic English skills. 3. To determine how words function in a sentence. 4. To encourage students to express themselves in English. 5. To understand negatives and questions in English. 6. This course introduces the principles of academic writing.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Identify the main parts of speech in English. Explain English pronouns and how to use them. Illustrate English adjectives and adverbs. Explain English prepositions Discuss conversation skills and encouraging students to participate in a dialogue. Improve the pronunciation skills of students. Introduce the main functions of English grammar. Describe verb to be. Illustrate English present simple tense. Discuss regular and irregular verbs. Describe English past simple tense. Identify Negatives and Question words. Discuss present continuous tense. Explain requests and offers. Review types of sentences in English.

Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A- Parts of speech: Introduction - Pronouns (definition, types, and use of pronouns) - Adjectives(definition, types, and use of adjectives) – Adverbs (definition, types, and use of adverbs) – Prepositions (definition, types, and use of prepositions) [14 hrs] Part B- Conversation skills: Encouraging students to express themselves in English – to talk about science using English – improvement of pronunciation skills [4 hrs] Revision problem classes [2 hrs] Part C- English grammar: Introduction - Verb to be – Present continuous tense -Negatives – Questions- Present simple tense –Question words –Past simple tense- Regular and irregular verbs - Requests and offers –Types of sentences in English [22 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Some effective strategies will be adopted in delivering this module such as, focusing on academic language, vocabulary exercises. Students will be given an opportunity to produce language through reading and speaking with receiving direct feedback to increase their comprehension and improve their language skills. This will be achieved through classes, group discussion, solving exercises, participation in conversations, interactive learning and writing activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	38	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	12	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	4	5% (20)	3, 5, 10	LO # 1, 2, ,3, 6, 8, 9, 10, and 13
	Assignments	2	5% (10)	2, 7, 12	LO # 2, 4 , 5, 10, 11, 12, 13 and 14
	Projects / Lab.	0	0% (0)		
	Report	1	10% (10)	13	LO # 1, 6 and 12
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Identify the main parts of speech in English.
Week 2	Explain English pronouns and prepositions.
Week 3	Illustrate English adjectives.
Week 4	Illustrate English adverbs.
Week 5	Discuss present perfect tense.
Week 6	Improve the pronunciation skills of students.
Week 7	Mid-term Exam
Week 8	Introduce the main functions of English grammar.
Week 9	Describe verb to be.
Week 10	Illustrate English present simple tense.
Week 11	Discuss regular and irregular verbs.
Week 12	Describe English past simple tense.
Week 13	Identify Negatives and Question words.
Week 14	Discuss present continuous tense.
Week 15	Discuss conversation skills
Week 16	**The final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Liz and John Soars, 2010, Headway, Oxford University Press.	No
Recommended Texts	English Grammar in Use, Raymond Murphy , 2nd edition, Cambridge University Press.	No
Websites		

Grading Scheme

مخطط الدرجات

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Success Group (50 - 100)	**A -** Excellent	امتياز	90 – 100	Outstanding Performance
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Module Information معلومات المادة الدراسية					
Module Title	Biophysics			**Module Delivery**	
Module Type	Core			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Code	Env109				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level	Two		**Semester of Delivery**	Four	
Administering Department	الصحة البيئية		**College**	كلية العلوم البيئية	
Module Leader	د.عمر كريم يونس د. أسماء عماد		**e-mail**	omer.abbosh@uomosul.edu.iq asmaaemad@uomosul.edu.iq	
Module Leader's Acad. Title	مدرس		**Module Leader's Qualification**	دكتوراه	
Module Tutor			**e-mail**		
Peer Reviewer Name	مدربسي العملي		**e-mail**		
Scientific Committee Approval Date	13-2-2024		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	لايوجد	**Semester**	
Co-requisites module	Biophysics	**Semester**	First

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1- Learn about the basics of physics in general and medical physics in particular. 2- Giving a general idea of the importance of studying medical physics. 3- Studying the basic branches of medical physics. 4- Identify the sciences related to medical physics.

	5- Identify the most important applications and uses of medical physics 6- Identify ways to apply the basics of proper handling of medical physical influences. 7- Proving the ability of medical physics to provide real protection for humans from the effects of radioactive materials. 8- Arrangement of physical effects that have serious implications in medical physics
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Identify the principles and foundations of physics in general 2- Identify the principles and foundations of medical physics in particular. 3- Knowledge of the main branches of medical physics. 4- Study the precise scientific concept of stimulated radiation. 5- The most important applications of lasers in medical sciences 6- Identify the mechanisms for using these indicators according to their degree of seriousness in useful applications. 7- Learn about the applications of physics in the field of health 8- Identify the most important devices in the field of environmental health.
Indicative Contents المحتويات الإرشادية	1- Introduction to medical physics -Branches of medical physics according to approved academic classifications 2- Identify the scientific meaning of laser beams -Types of lasers -Semiconductor laser -Solid state materials -Liquid state lasers -CO2 laser 3- Identify methods of dealing with sound waves. -Laboratory handling -Practical dealing -Dealing with noise polluted areas. 4- Learn about heat therapy 5- Identifying EKG devices.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1- Give a brief overview of medical physics. 2- Explaining the relationship of medical physics with other sciences, such as chemistry, life science, and environmental science, and supporting that relationship with illustrative pictures. 3- Study of several systems for laser activity. 4- Study the applicability of thermal physics in various fields. 5- The theoretical lectures given are consistent with the scientific material given in the laboratory.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to medical physics
Week 2	Branches of medical physics
Week 3	Natural radioactivity
Week 4	Radioactive decay chains
Week 5	Industrial radioactivity
Week 6	Laser science and its applications -1

Week 7	Laser science and its applications -2
Week 8	Sound waves and their applications
Week 9	Apply sound waves
Week 10	Ultrasound application
Week 11	Heat wave applications
Week 12	Applications of the basics of thermal physics in the field of environmental health
Week 13	Characterization of ECG devices
Week 14	Characterization of EEG devices
Week 15	(Final Exam)
Week 16	

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Simple pendulum
Week 2	Prove Hooke's law
Week 3	The coefficient of legitimate friction
Week 4	The refractive index of the prism
Week 5	Index of refraction of glass (glass block)
Week 6	Focal length of a convex lens
Week 7	Speed of sound using a resonant tube closed at one end
Week 8	Ohm's law
Week 9	Determine the viscosity coefficient of liquids
Week 10	Archimedes' rule
Week 11	Specific heat of a solid
Week 12	Thermo-mechanical equivalent (Joule equivalent)
Week 13	Measuring the focal length of a concave mirror
Week 14	Determine the frequency of a tuning fork using a sonometer
Week 15	final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	D.W. Preston and E.R. Dietz, The Art of Experimental Physics. Wiley, 1991.	نعم
Recommended Texts	A.C. Melissinos and J. Napolitano Experiments in Modern Physics, 2nd Edition, Academic Press, 2003. An update of the classic. However, a few nuggets from the first edition did not make it to this one H. Mark and N.T. Olson, Experiments in Modern Physics. McGraw-Hill, 1966.	
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.

Module Information معلومات المادة الدراسية					
Module Title	Computer II			**Module Delivery**	
Module Type	S			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ENV111				
ECTS Credits	**3.00**				
SWL (hr/sem)	**75**				
Module Level	Two		**Semester of Delivery**	FIRST	
Administering Department	Environmental Health		**College**	Environmenal Sciences	
Module Leader	RAGHEED DURAID AL-DABBAGH		**e-mail**	ragheed2019@uomosul.edu.iq	
Module Leader's Acad. Title	Assistant Teacher		**Module Leader's Qualification**	Master in Computer Science	
Module Tutor	DAFAR THAMER		**e-mail**	dhafar.thamer@uomosul.edu.iq	
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	2024/2/1		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Computer	**Semester**	One
Co-requisites module	Nil	**Semester**	nil

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. The ultimate beginner's guide to learning basic computer skills. 2. Make the student familiar with basic computing skills 3. Shows you everything a student needs to know about the Microsoft Office Master 4. Guide the student step by step through the most important concepts and skills needed to be computer proficient 5. Get to know the actual physical machine 6. The student will learn how to navigate Windows 10, how to access and navigate the Internet, and how to stay in touch with email. 7. Introducing the student to Microsoft Office 2013, which helps him create documents in Word, spreadsheets in Excel, and presentations in PowerPoint.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand the basics of how a computer works. 2. Learn how to work with Windows 10 3. Create documents, spreadsheets, and presentations. 4. Email, surf the web, and keep your data safe. 5. Through clear explanations and step-by-step instructions, you will help the student understand the basics of computing.
Indicative Contents المحتويات الإرشادية	1. Introduction to computer basics (2 hours) ○ Basics and computers (2 hours) ○ Computer basics (4 hours) 2. System unit (2 hours) ○ • Input, output and storage (4 hours) 3. OS 10 Essentials (5 hours) ○ Introduction to Windows 10 ○ Windows10 management and maintenance 4. Understand application software ○ • Microsoft Office 2010 ○ • Word processing using Microsoft Word 2010 ○ • Creating spreadsheets using Microsoft Excel 2010 ○ • Access 2010 database management ○ • Create presentation graphics using PowerPoint 2010

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Provide the visuals. Support student understanding with visual examples, instructions, and explanations. 2. Encourage the students. Studies show that encouragement from a teacher or a parent is associated with increased students' interest in learning computer science. 3. .Encourage students to work together and help each other learn. 4. Create a link in the real world. Helping students see how computer science is relevant to their lives and future jobs. 5. Collaborate and share. Encourage students to collaborate on projects and share their work with others. 6. The students learned that intelligence is not fixed and that they can improve their skills with hard work and practice

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدرا يس المنتظم للطالب خلال الفصل		**Structured SWL (h/w)** الحمل الدرا يس المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدرا يس غ ري المنتظم للطالب خلال الفصل		**Unstructured SWL (h/w)** الحمل الدرا يس غ ري المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدرا يس الك يل للطالب خلال الفصل			

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5,10	5,6 and 7
	Assignments	2	10% (10)	2,12	8
	Projects / Lab.	1	10% (10)	Continuous	All

	Report	1	10% (10)	13	2
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	1-4
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to computer basics
Week 2	Operating system basics
Week 3	Windows10 administration and maintenance
Week 4	Understanding application software
Week 5	Microsoft Office 2010
Week 6	Word processing using Microsoft Word 2010
Week 7	Create spreadsheets using Microsoft Excel 2010
Week 8	Recognizing and dealing with Excel
Week 9	Data management in Excel
Week 10	Formulas and functions in Excel (1)
Week 11	Formulas and functions in Excel (2)
Week 12	File formatting in Excel
Week 13	Data handling and protection
Week 14	Handling workbook sheets
Week 15	Charts, indicator lines, and handling

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to computer basics (application)
Week 2	Operating System Basics (Application)
Week 3	Windows10 administration and maintenance (application)
Week 4	Understanding application software (application)
Week 5	Microsoft Office 2010 (Application)
Week 6	Word processing using Microsoft Word 2010 (application)
Week 7	Create spread sheets using Microsoft Excel 2010 (application)
Week 8	Getting to know and deal with Excel (application)
Week 9	Data management in Excel (application)
Week 10	Formulas and functions in Excel (1) (application)
Week 11	Formulas and functions in Excel (2) (application)
Week 12	File format in Excel (application)
Week 13	Data handling and protection (application)
Week 14	Working with workbook sheets (application)
Week 15	Charts, indicator lines and handling (application)

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts		
Recommended Texts		
Websites	https://www.microsoft.com/ar/microsoft-365/excel?market=er	

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

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MODULE DESCRIPTION FORM

Module Information					
Module Title	**Analytical chemistry**			**Module Delivery**	
Module Type	Core			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ENVH102				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level		One	**Semester of Delivery**		One
Administering Department		Environmental Health	**College**	College of Environmental Sciences	
Module Leader	Assist Prof Doctor: Yusra Majeed AlShaker		**e-mail**	Yusramajeed@uomosul.edu.iq	
Module Leader's Acad. Title		The scientific title: Assist prof	**Module Leader's Qualification**		Certificate: Doctor of Philosophy in Chemistry/ Analytical chemistry
Module Tutor	Doctor Lecturer: Dr. Liqa'a Saeed Abdullah		**e-mail**	liqaasaeed@uomosul.edu.iq	
Peer Reviewer Name		Dr. Liqa'a Saeed Abdullah Dr. Omer Idres saleh Ghazwan Thamir kasem مها عامر بدرية موفق	**e-mail**	liqaasaeed@uomosul.edu.iq omersaleh@uomosul.edu.iq Ghazwan.kasim@uomosul.edu.iq	
Scientific Committee Approval Date		16/11/2024	**Version Number**		1.0

Relation with other Modules			
Prerequisite module	Nothing	**Semester**	
Co-requisites module	Organic chemistry	**Semester**	1st.

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. Students learn about the subject of analytical chemistry and its role in understanding the analysis of chemical elements and compounds and the preparation of chemicals. 2. For the purpose of use in chemical analysis processes. 3. Identify the basic concepts of analytical chemistry and how to benefit from them and link them to daily phenomena. 4. It makes students feel the value and importance of the subject of analytical chemistry and its role in daily life through qualitative assessment water and its role in quality control processes. 5. Utilizing the student's scientific knowledge in a way that helps him face life problems. 6. Utilizing the student's scientific knowledge and preparing him to be a leading teacher in his field of work through understanding the academic material.
Module Learning Outcomes	A. Definition of the course a. Knowledge and understanding Learn about the subject of analytical chemistry, its sections, and how this science has developed to become one of the most important branches of chemistry and a basic pillar due to its direct connection to modern scientific applications. B - Subject-specific skills a. Identifying the basic concepts of analytical chemistry and how to benefit from them and link them to daily phenomena. b. Providing the student with the necessary skill in employing the acquired knowledge to be a pillar in the understanding process for the purpose of applying it in the practical aspect and communicating it correctly to the students. c. Providing the student with knowledge in the field of chemistry, as it is possible for the student to transform this knowledge into action when the situation requires a specific response to solve a problem.

Indicative Contents	Introduction to analytical chemistry and its importance Chemical analysis steps Types of chemical solutions and calculating their concentrations Methods for measuring pH Titrations and their types - equivalence and end points Mathematical calculations of the effectiveness factor and the effect of ions Calculations of the acid function for weak acids and bases Classification of acids and bases and the relationship between dissociation constants Calculations of the acid function for various weak acids Calculations of the acid function of salt solutions Calculations of the acid function for buffered solutions

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Teaching and learning methods: lecture, dialogue, discussion, giving examples, exams and tests, writing and discussing reports, practical laboratory, and information available online. Evaluation methods: monthly exams, homework assignments, students' daily activity, writing reports, quizzes, daily preparation, and recording participation for each male and female student. Thinking skills 1. Asking questions during the lecture, for the purpose of attracting students to the ability to answer them 2. Linking analytical chemistry topics to what is happening in the environment in which students live, and the possibility of benefiting from them to facilitate life and enjoy scientific and technological achievements. 3. Ask questions and researching the latest developments in chemistry, especially with regard to medical science.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	108	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	92	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation
تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction to analytical chemistry and its importance
Week 2	Chemical analysis steps
Week 3	Types of chemical solutions and calculating their concentrations
Week 4	Daily exam
Week 5	Methods for measuring pH
Week 6	Titrations and their types - equivalence and end points
Week 7	Mathematical calculations of the effectiveness factor and the effect of ions
Week 8	Calculations of the acid function for weak acids and bases
Week 9	Classification of acids and bases and the relationship between dissociation constants
Week 10	Calculations of the acid function for various weak acids
Week 11	Calculations of the acid function of salt solutions

Week 12	Calculations of the acid function for buffered solutions
Week 13	Arithmetic questions and methods for finding the concentration of chemical materials with a daily exam
Week 14	Review the academic subject with arithmetic questions.
Week 15	Comprehensive examination of the subject.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	General directions and instructions for the analytical chemistry laboratory
Week 2	Introduction to qualitative, quantitative and volumetric analysis
Week 3	Devices and tools used in the laboratory
Week 4	Volumetric analysis (titration, calibration, equalization titrations)
Week 5	Experiment with mixture titrations (A, B, C)
Week 6	Precipitation titrations. Mohr and Volhard experiment
Week 7	Exam in the above subject
Week 8	Redox titrations Complex formation titrations
Week 9	Experiment to measure the total hardness of water
Week 10	Introduction to spectroscopy and experiment with phosphate estimation using the spectrophotometric method
Week 11	Visible molecular spectrometry, nitrite ion determination experiment
Week 12	Flame spectrometry and an experiment to estimate the proportion of some alkaline and alkaline earth elements.
Week 13	Nephelometric. Sulfate estimation experiment.
Week 14	Comprehensive practical exam
Week 15	A comprehensive discussion of the course material.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	(أسس الكيمياء التحليلية). ثابت الغبشة-مؤيد قاسم العبايجي	Yes

Recommended Texts	Fundamentals of Analytical Chemistry. Sixth edition, 2017, (Skoog, Douglas A.; West, Donald M.; Hollar, James F.)	
Websites	Modern sources were adopted, in addition to the basic sources described above, for the purpose of preparing the prescribed material according to the vocabulary of the sectoral committee approved by the Ministry of Higher Education and Scientific Research, including sources taken from the Internet.	

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

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MODULE DESCRIPTION FORM

Module Information معلومات المادة الدراسية					
Module Title	Ecology			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	ENV103				
ECTS Credits	6.00				
SWL (hr./sem.)					
Module Level	First		**Semester of Delivery**	1	
Administering Department	Enviromental health		**College**	Enviromental Sciences and Technologies	
Module Leader	**Shaymaa Khaleel Abdullah** **Ashraf Saddik Alias**		**e-mail**	drshaymaakhleel@uomosul.edu.iq ashraf.saddik@uomosul.edu.iq	
Module Leader's Acad. Title	**A.Prof.** **A. Prof.**		**Module Leader's Qualification**	**Ph.D** **Master**	
Module Tutor	**Ashraf Saddik Alias**		**e-mail**	ashraf.saddik@uomosul.edu.iq	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	1/10/2023		**Version Number**	1.0	

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	صحة عامة وعلم السموم	**Semester**	3و5

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	**.** The aim of this course is to develop basic skills and knowledge to raise issues related to the knowledge of ecology and its associated living and non-living components and to diagnose the types of pollutants for the purpose of environmental sustainability and thus create an environment for the living of vital components, and to provide modern technologies for legalization and waste management and methods of disposal and treatment. Introducing the concepts of urbanization and its impact on the natural water cycle, through which the student will be introduced to modern scientific methods for protecting the environment from pollution and preserving natural resources from pollution such as water, air and soil.
Module Learning Outcomes	**. On completion of the course, students are expected to be able to:** 1. Determine the basic principles of ecology. 2. Identify the challenges facing the types of living and non-living components. 3. Determine the basic components for characterizing the natural and nonnatural resources of the environment 4. Identify and analyze the cycle of elements in nature. 5. Describe the principle of endurance laws in the environment 6. Describe the different components of an environmental system. 7. Describe the concepts to determine the value of influencing factors of importance as determinants of living in the environment. 8. Explain how the balance in the ecosystem provides good produc□vity in various resources 9. Explain and estimate food chains and their impact on the community of organisms 10. Explain the theore□cal founda□ons and main principles of sustainable development and their application to environmental resources. 11. Understanding the main trends in the components of society and their impact on balance and sustainability. 12. Understand the complex interac□on between living and non-living components of an ecosystem 13. Understand how economic principles can guide the planning and allocation of water resources. 14. Analyze and es□mate Ecological Pollu□on for agricultural, hydropower, domestic, environmental and other uses. 15. Integra□on of informa□on from a range of disciplines into a comprehensive picture of the issue of water resource management. 16. Evaluation of pollutant treatment strategies through different criteria. 17. Clarifying waste treatment and recycling methods 18. Develop a sound understanding of the principles and issues related to the conservation and management of water, soil and air. 19. Applying skill in solving problems facing the management of environmental resources.

Indicative Contents	**1-2 Week (6 hours)** ***Concepts and definitions of ecology*** Ecology" - prief history - Definition of Ecology - The importance of environmental science - The relationship of ecology with other sciences - First: the division of ecology for the purposes of scientific research 1 - The division depends on the nature of living and includes: - Aquatic Ecology - (Marine Ecology - Estuarine Ecology- Fresh water Ecology-) - Terrestrial Ecology - Third: the division based on the number and type of organism - Fourth: the division of ecology through its relationship to other sciences - Fifth: The division of ecology into the science of ecology of plants and animals **3-4 Week (6 hours)** ***Development of water resources*** Ecosystem - Terrestrial ecosystems (land), aquatic ecosystems - - Structure of Ecosystem: (Abiotic components- Biotic components) - Producer Organisms, consume, and Decompose - Micro Ecosystem – Incomplete Ecosystems - Concepts related to gender and individual - Habitat and Ecological Niche - Ecological equivalent- Environmental Stability- - Biogeochemical Cycles: - Hydrologic cycle:- Water – - Gaseous cycles:- Nitrogen- Carbon Cycle - Sedimentary cycles: Phosphorus **5-6 Week (6hours)** ***Management of environmental systems*** - Tolerance laws & limiting factors: - - Liebig's law of the minimum - - Shelford's law of the maximum

	- Combined concept of limiting factors - Important influencing factors as determining factors - (Temperature- Humidity- Light- Light intensity- Gases- Soil- Salinity- PHWind- Nutrients- Fires) **7-9 Week(9 h.)** ***The laws of ecology*** - Productivity - Gross primary productivity, Net primary productivity, Net community productivity, Secondary productivity, - Factors determining productivity - - Energy flow - Methods for measuring productivity - Food chains - Nutritional level - Food webs - Trophical structure - ecological pyramids - - Levels of study in environmental Science **10 week (3 h.)** ***Productivity and its levels in the food web*** Community 7, 9, 14, 20, and 24 - Relationships between organisms in the community - Ecological Succession - Ecological pollution ***Identification of pollutants and methods of treatment and analysis in air, water and soil*** **11week (3)** **Air pollution** - Layers of the atmosphere

	- The main sources of pollution - Types of air pollutants **12 week (3)** **Global air pollutants:** - Global Warming - The ozone layer in the atmosphere - - Radiation Pollution - Biological effects of radiation - Smoking - Methods of treatment and reduction of air pollution **13week (3h.)** **Water pollution** - The physical and chemical properties of water - The main factors leading to water pollution - Methods of introducing pollutants into water - Water pollutants - Methods of treatment and reduction of water pollution **14-15 week (8 h.)** **Identification of pollutants and methods of treatment and analysis in air, water** **Soil pollution** - Sources of soil pollution: - Agricultural chemicals - Domestic and industrial waste - Acid rains - Heavy metals

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	

	The main strategy that will be adopted in presenting this course is to encourage students to read and discuss, and to provide the student with the skill of scientific observation and description of the phenomenon, while improving their critical thinking skills at the same time. This will be achieved through daily and quarterly examinations, daily discussions, and through hands-on observations in laboratory experiments that include some sampling activities and examination of specimens .

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (hr./sem.)	78	**Structured SWL (hr./w)**	5
Unstructured SWL (hr./sem.)	72	**Unstructured SWL (hr./w)**	4
Total SWL (hr./sem.)	150		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5,10	5,6 and 7
	Assignments	2	10% (10)	2,21	8
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	5
Summative assessment	**Midterm Exam**	2 hr.	10% (10)	7	2,1
	Final Exam	2 hr.	50% (50)	16	All
Total assessment			100% (100 Marks)		

	Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
week	**hours**	**Material Covered**
1		**Ecology**
2		**Ecosystem**
3		**Physico-chemical Environmental Parameters**

4		Hydrologic & Biogeochemical Cycles
5		Sedimentary Cycle
6		Energy Flow in Ecosystem
7		Productivity
8		Food & Web Chains
9		Limiting Factors & Tolerance Laws
10		Population
11		urvivorship Curves
12		Population Growth
13		Community
14		Ecological Interactions
15		Types of Ecological Interactions
		Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Instructions and laboratory safety
Week 2	Lab 2: Introduc□on to Agilent VEE and PSPICE
Week 3	Lab3 Levels of organiza□on in an ecosystem, Types of biomes
Week 4	Lab4 :A bio□c factors
Week 5	Lab5: temperature, importance of temperature, temperature devices
Week 6	Lab6: Light or solar irradiance
Week 7	Lab 7: Water flow
Week 8	Lab8: The Dew
Week 9	Lab9: The Air
Week 10	Lab 10: The Soil
Week 11	Lab 11: Chemical factors, pH
Week 12	Lab 12: Methods for measuring electrical conduc□vity
Week 13	Lab 13: Method for measuring carbonates in soil

Learning and Teaching Resources

مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	- "Environmental Science" edited by Hussein Ali Al-Saadi - Theses and treatises for postgraduate students - World Environment - United Nations - World Environment Organization - Global Health Organization	Yes
Recommended Texts	- Environmental Threats, George Kadi - Environment and its problems, Rashid Al-Hamad - United Nations Environment Organization -The role of international organizations in protecting the Environment	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.

Learning Outcomes and Assessment Methods for " Ecology " Cours

Topics Covered	Learning Outcomes	Strategies for Achieving Outcomes	Assessment Methods
Topic I: **Concepts and definitions**		Report Writing, Field Visits, Theoretical Lectures, Scientific Films, Exploratory Work Teams	quizzes, Major reports, discussions during lectures, Written Exams, oral exam
Topic II : **Developmen of water resources**		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: - Management of environmental systems		Problem Based Learning, Report Writing, Theoretical Lectures, Small Group Discussions, Scientific Films.	Quizzes, discussions during lectures, Written Exams, Home work, oral exams.
Topic IV: **- The laws of Ecology**		Report Writing, Scientific Trips. Theoretical Lectures, Small Group Discussions, and Scientific Films.	Seminars, Major reports, discussions during lectures. Written Exams, oral exams
Topic V: - **Productivity and its levels in the food web**		Theoretical Lectures, Small Group Discussions,	Seminars, quizzes, discussions during lectures, Written Exams, oral exams.
Topic VI: - Environmental pollution and the demanfor a clean environment		Problem Based Learning, Report Writing, Field Visits, Scientific Trips, TheoreticalLectures, Small Group Discussions, Scientific Films, and, Exploratory Work Teams.	Seminars, quizzes, Major reports, Written Exams, Home work, oral exams.
Topic VII**: - Identification of pollutants and methods of treatment and analysis in air, water and soil**		Problem Based Learning, Theoretical Lectures, Small Group Discussions	quizzes, discussions during lectures. Written Exams, Home work.

MODULE DESCRIPTION FORM

Course Description Form

Module Information					
Module Title	Baath regime crimes			**Module Delivery**	
Module Type	B			☐ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOM104				
ECTS Credits	**2**				
SWL (hr/sem)	150				
Module Level	One		**Semester of Delivery**	One	
Administering Department	Environmental health		**College**	Faculty of Environmental Sciences and Technologies	
Module Leader	Subject teacher:		Subject teacher:		
Module Leader's Acad. Title	Mr. Elham Saeed Qader		Mr. Elham Saeed Qader	Degree: Master of Political Science	
e-mail					
Peer Reviewer Name					
Scientific Committee Approval Date	2024/10/1		**Version Number**	1.0	

Relation with other Modules Relationship with other subjects			
Prerequisite module	No	**Semester**	
Co-requisites module	Crimes of the Baath regime	**Semester**	first

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	1. 1. The objectives of teaching the subject of crimes of the Baath regime include: 2. 2. Understanding the meaning of crime and international crime 3. 3. Identifying the most important categories of crimes and their types. 4. 4. Analyzing the crimes committed by the Baath regime according to the documentation of laws and decisions issued by the Iraqi Criminal Court in 2005. 5. 5. Identifying the forms of human rights violations and their effects.
Module Learning Outcomes	Genetics learning outcomes include students acquiring a set of skills and knowledge that - . :enable them to The student should be able to distinguish between different terms and concepts such as _1 .((crime in terminology and language and crime in the psychological, legal and social context To be able to understand and comprehend international declarations and conventions -2 .related to human rights violations and the commission of international crimes To be able to express an opinion regarding any term of international crimes and Baath -3 regime violations of human rights
Indicative Contents	The concept of crime and its divisions Types of international crimes Crimes of the Baath Party according to the documentation of the Iraqi Supreme .Criminal Court Law in 2005 Psychological and social crimes and their effects, and the most prominent violations .of the Baath regime in Iraq Mechanisms of psychological crimes Images of human rights violations and crimes of authority Decisions on political and military violations of the Baath regime Prison and detention sites of the Baath regime Environmental crimes of the Baath regime War and radioactive pollution and mine explosions (Destruction of cities and villages (scorched earth policy (Mass graves crimes (concept Ten mass graves events committed by the Baath regime Ten chronological classification of mass graves in Iraq for the period 1963-2003.

Learning and Teaching Strategies

Strategies	.Electronic lecture accompanied by explanation and analysis .Discussion session .2 .Reports and research .3 PowerPoint presentation of the material .4 Questions and answers .5 Class participation .6

Student Workload (SWL)

Structured SWL (h/sem)	93	**Structured SWL (h/w)**	5
Unstructured SWL (h/sem)	57	**Unstructured SWL (h/w)**	4
Total SWL (h/sem)	150		

Module Evaluation

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

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Crime concept and its divisions
Week 2	Types of international crimes

Week 3	Baath Party crimes according to the documentation of the Iraqi Supreme Criminal Court Law of 2005..
Week 4	
Week 5	Psychological and social crimes and their effects, and the most prominent violations of the Baath regime in Iraq.
Week 6	
Week 7	Mechanisms of psychological crimes
Week 8	Pictures of human rights violations and crimes of authority
Week 9	Decisions on political and military violations of the Baath regime
Week 10	Places of prisons and detention of the Baath regime
Week 11	Environmental crimes of the Baath regime
Week 12	War and radioactive pollution and mine explosions
Week 13	Destruction of cities and villages (scorched earth policy)
Week 14	Mass graves crimes (concept)
Week 15	

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Many of them	yes
Recommended Texts		
Websites	Modern sources were adopted in addition to the primary sources indicated above, for the purpose of preparing the assigned material according to the terms of the approved sectoral committee in the Ministry of Higher Education and Scientific Research, including sources taken from the Internet.	

Grading Scheme

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

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

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Computer I			**Module Delivery**	
Module Type	S			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	Uom103				
ECTS Credits	**3.00**				
SWL (hr/sem)	**75**				
Module Level	Two		**Semester of Delivery**	FIRST	
Administering Department	Environmental Health		**College**	Environmenal Sciences	
Module Leader	RAGHEED DURAID AL-DABBAGH		**e-mail**	ragheed2019@uomosul.edu.iq	
Module Leader's Acad. Title	Assistant Teacher		**Module Leader's Qualification**	Master in Computer Science	
Module Tutor	DAFAR THAMER		**e-mail**	dhafar.thamer@uomosul.edu.iq	
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	2024/11/1		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Computer II	**Semester**	Two
Co-requisites module	Nil	**Semester**	nil

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. The ultimate beginner's guide to learning basic computer skills. 2. Make the student familiar with basic computing skills 3. Shows you everything a student needs to know about the Microsoft Office Master 4. Guide the student step by step through the most important concepts and skills needed to be computer proficient 5. Get to know the actual physical machine 6. The student will learn how to navigate Windows 10, how to access and navigate the Internet, and how to stay in touch with email. 7. Introducing the student to Microsoft Office 2013, which helps him create documents in Word, spreadsheets in Excel, and presentations in PowerPoint.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understand the basics of how a computer works. 2. Learn how to work with Windows 10 3. Create documents, spreadsheets, and presentations. 4. Email, surf the web, and keep your data safe. 5. Through clear explanations and step-by-step instructions, you will help the student understand the basics of computing.
Indicative Contents المحتويات الإرشادية	1. Introduction to computer basics (2 hours) ○ Basics and computers (2 hours) ○ Computer basics (4 hours) 2. System unit (2 hours) ○ • Input, output and storage (4 hours) 3. OS 10 Essentials (5 hours) ○ Introduction to Windows 10 ○ Windows10 management and maintenance 4. Understand application software ○ Microsoft Office 2010 ○ • Text Processing Using Microsoft Word 2010 ○ • Creating Styles, File Saving Methods, File Management and Retrieval Using Microsoft Word 2010

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Provide the visuals. Support student understanding with visual examples, instructions, and explanations. 2. Encourage the students. Studies show that encouragement from a teacher or a parent is associated with increased students' interest in learning computer science. 3. .Encourage students to work together and help each other learn. 4. Create a link in the real world. Helping students see how computer science is relevant to their lives and future jobs. 5. Collaborate and share. Encourage students to collaborate on projects and share their work with others. 6. The students learned that intelligence is not fixed and that they can improve their skills with hard work and practice

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدرا يس المنتظم للطالب خلال الفصل		**Structured SWL (h/w)** الحمل الدرا يس المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدرا يس غ ري المنتظم للطالب خلال الفصل		**Unstructured SWL (h/w)** الحمل الدرا يس غ ري المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدرا يس الك يل للطالب خلال الفصل			

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5,10	5,6 and 7
	Assignments	2	10% (10)	2,12	8
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	2
	Midterm Exam	2hr	10% (10)	7	1-4

Summative assessment	**Final Exam**	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Computers
Week 2	Introduction to Number Systems
Week 3	Conversion from Decimal to Binary and Vice Versa
Week 4	Arithmetic Operations Using the Binary Number System
Week 5	Basics of Operating Systems
Week 6	Basic Computer Operations and How Computers Work
Week 7	Computer Evolution Series
Week 8	Types of Computers and Their Features
Week 9	Hardware and Software Components of Computers
Week 10	System Software
Week 11	Operating Systems
Week 12	Web Basics
Week 13	Network and Internet Basics
Week 14	Privacy and Security in Networks and Internet
Week 15	Windows Operating System

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to Computer
Week 2	Operating System Basics
Week 3	OS Skills
Week 4	Windows10 Administration and Maintenance
Week 5	Understanding Application Programs
Week 6	Microsoft Office 2010
Week 7	Text Processing Using Microsoft Word 2010
Week 8	Creating file Using Microsoft Word 2010
Week 9	Save and Retrieve files in Microsoft Word 2010
Week 10	Creating Styles in Microsoft Word 2010
Week 11	File Management in Microsoft Word 2010
Week 12	Networking and Internet Basics
Week 13	Communicating Online
Week 14	Web Basics
Week 15	Privacy and Security in Networks and the Internet

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts		
Recommended Texts		
Websites	https://www.microsoft.com/ar/microsoft-365/word ?market=er	

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