MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Introduction to Ecology**			**Module Delivery**	
Module Type	**Core**			☒**Theory** ☒**Lecture** ☐ **Lab** ☐**Tutorial** ☐**Practical** ☒ **Seminar**	
Module Code	**UoB12345**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Rand otbah		**e-mail**	Rand.o.farqad@uomosul.edu.iq	
Module Leader's Acad. Title	Assistant Lacture		**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	12/011/2024		**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 أهداف المادة الدراسية	1. Provides a broad overview of ecological responses to climate change on Earth. 2. Students will learn how climate change affects ecological processes such as genetics, physiology, behavior, morphology, phenology, distribution, and interactions of species, communities, and ecosystems. 3. We will focus on observed rather than predicted effects of climate change on plants and animals in freshwater, terrestrial, and marine ecosystems. Additional Course Description: 4. Climate Change Ecology will provide a broad overview of patterns and processes in climate change science. 5. Students will gain an understanding of how climate change, as well as other human disturbances, affect ecological processes from the smallest gene to the largest ecosystem level.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. By the end of the course, students should be able to… 1. Create a climate change vulnerability assessment for species 2. List and describe the core ecological processes that are studied in climate changescience 3. Describe the dominant climate gradients that exist on the Earth and explain how they are important for climate change ecology 4. List and describe the primary methods and approaches for studying climate change Ecology. 5. Summarize how climate change interacts with species genetics, morphology, and physiology. 6. Describe how phenology and life-cycle processes in plants and animals are shifting in response to climate change 7. Describe how historical, current, and future climates shape species distributions. 8. Develop an understanding of the basis for species distribution models and how they are used in climate change research 9. Recognize and describe how species interactions might escalate the impacts of climate change 10. Identify the magnitude and scale at which communities and ecosystems are responding to climate change 11. Setup and execute a case study on invasive brown anoles to assess interactions ,between urbanization, invasion ecology, and climate change 12. • Critically think about traditional conservation science and formulate hypotheses as to how it might change in the future under climate change.

Indicative Contents المحتويات الإرشادية	In ecology, the water cycle is a fundamental process that plays a key role in the functioning of ecosystems and the maintenance of life on Earth. It regulates the availability of water, supports plant and animal life, and helps sustain habitats. The cycle also interacts with other ecological processes, such as nutrient cycling, climate regulation, and habitat formation. 4 hrs Biodiversity in ecology refers to the variety and variability of life on Earth, encompassing the diversity of species, genes, ecosystems, and ecological processes. It is a fundamental aspect of the natural world and is essential for maintaining ecosystem stability, resilience, and overall health. Biodiversity not only includes the vast array of organisms that inhabit Earth but also the complex interactions between these organisms and the environments they occupy. (2 hrs). An ecological pyramid (also known as a trophic pyramid) is a graphical representation that shows the distribution of energy, biomass, or numbers of organisms across different trophic (feeding) levels in an ecosystem. These pyramids are essential tools in ecology for understanding the flow of energy and the structure of food webs within an ecosystem. (2 hrs).

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Classes are given in weekly mode and include workshops by online classes. The workshops are supported by videos, problem solving exercises and class notes. The subject comprises active learning modules for students whereby demonstrations in using modern teaching skills. Each active learning session is also supported by information on online classes including videos, which will need to be consulted/previewed prior to attending class, and where necessary, pre-class quizzes need to be completed. The completion of these quizzes allows for feedback to be provided to students.

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	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem)	**125**		

الحمل الدراسي الكلي للطالب خلال الفصل	

Module Evaluation
تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction :Abrief historyof Egology
Week 2	Introduction to the ecology system
Week 3	Components of the ecosystem
Week 4	Physico-chemical Environmental Parameters
Week 5	Water cycle and biological cycles
Week 6	Hydrologic & Biogeochemical Cycles
Week 7	Mid-term Exam + Unit-Step Forcing, Forced Response.
Week 8	Biodiversity (biological communities), extinction, biodiversity, genetic diversity, species diversity, ecosystem diversity (importance of biodiversity), direct economic value, indirect economic value, (factors facing biodiversity), extinction, natural resources, overexploitation, loss of habitat, (conservation of biodiversity), renewable resources, non-renewable resources, sustainable development.
Week 9	Environmental behaviors.
Week 10	Energy Flow in Ecosystem.

Week 11	Ecological pyramids
Week 12	Limiting factors and tolerance laws
Week 13	Population groups
Week 14	Population Growth
Week 15	**Environmental relationships**
Week 16	**Preparatory week before the final Exam**

Plan (Weekly Lab.Syllsbus)For Environmental Science المنهاج الأسبوعي العملي	
	Material Covered
Week 1	Lab1:Lab Safty Rule and guidelines
Week 2	Lab2:Samples Collective (Water,soil,plant)
Week 3	Lab3:Air pollution
Week 4	Lab4:Device and Equipment of (زيارة ميدانية)
Week 5	Lab5:Acid Rain
Week 6	Lab6:Heavy Metals
Week 7	Mid-term Exam + Unit-Step Forcing, Forced Response.
Week 8	Lab8: Water Pollution
Week 9	Lab9:Feeding Relationship and food Chanins and food webs, Trophic levels
Week 10	Lab10:Origin of Ecosystem
Week 11	Lab11:Ecological succession
Week 12	Lab12:Watter Ecosystem(عرض فديو توضيحي)
Week 13	Lab13:Forest Ecosystem (عرض فديو ومناقشة)
Week 14	Lab14:Energy Transport in Ecosystem (عرض فديو توضيحي)
Week 15	Lab15:Lake mosul dam
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Introduction to Ecology and its Problems/ College of Arts, University of Basra/2019	Yes

Recommended Texts	Ecology/2002	Yes
Websites	https:/www.ResearchGate.net - Temporarily Unavailable	

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.