2	Course number	0334771/ 0304772
3	Credit hours	3 credit hours Theory
	Contact hours (theory, practical)	3 hrs weekly (two 90 min lectures per week)
4	Prerequisites/corequisites	None
5	Program title	M.Sc. in Environmental Resources and Management and Biological Sciences
6	Program code	04
7	Awarding institution	The University of Jordan
8	School	School of Science
9	Department	Department of Biological Sciences
10	Level of course	Graduate
11	Year of study and semester (s)	2023/2024 Spring semester
12	Final Qualification	NA
13	Other department (s) involved in teaching the course	None
14	Language of Instruction	English
15	Teaching methodology	On campus lectures
16	Electronic platform(s)	☒Moodle Microsoft Teams ☐Skype ☐Zoom ☒Others: emails
17	Date of production/revision	Feb 2024

18 Course Coordinator:

Office number, office hours, phone numbers, and email addresses should be listed.
Prof Dr Said Damhoureyeh; 105 Biology; Sun, 10 – 12, Mon, Wed 11 – 1:00. Ext. 22213;
saidd@ju.edu.jo

19 Other instructors:

None

20 Course Description:

As stated in the approved study plan.

The course focuses on defining the different types of ecosystems of the world (structure and functions) and how these ecosystems are distributed. In addition, we will focus on some of major processes taking place in ecosystems such as nitrogen cycle, decomposition and mineralization, evapo-transpiration, …etc.
During the course, we will also discuss some of the problems that will affect ecosystems such as nitrogen saturation and climate change. In addition, we will talk about the phenomenon of desertification.

21 Course aims and outcomes:

A- Aims:
This course has two major aims: i) to provide an introduction to the structure and functions of ecosystems and ii) to give o closer look to major problems facing these systems

B- Student's Learning Outcomes (SLOs): Upon successful completion of this course students will be able to …
By the completion of this course, students will be able to:
1.   Recognize the components of ecosystems.
2.   Understand the structure and function of these systems and the basis of these classifications.
3.   Describe how ecosystems function is affected by climate change
4.   Understand the importance of energy flow in the system the process of nutrient cycling.
5.   Describe the process of nitrogen saturation and how it affects the some ecosystems.
6.   Describe the process of desertification.
7.   Recognize and use scientific language, reporting, presenting and writing scientific reports.

22. Topic Outline and Schedule:

Week/ Lecture	Topic	SLO's	Teaching Methods*/platform	Evaluation Methods	References
1.1	Introduction	1	In-class lecture	Q & A	Different resources
1.2	Overview of the course and review of the structure and function of ecosystems	1	In-class lecture	Q & A	Different resources
2.1	Global climate patterns	1, 2, 3	In-class lecture	Q & A	Different resources
2.2	Theories explaining distribution of ecosystems and	1, 2, 3, 4	In-class lecture	Q & A	Different resources
3.1	vegetation types	1, 2, 3, 4	In-class lecture	Q & A	Different resources
3.2	Nutrient cycling and controls over productivity	1, 2, 3, 4, 5	In-class lecture	Q & A	Different resources
4.1	Nutrient cycling and types of productivity in different systems	1, 2, 3, 4, 5	In-class lecture	Q & A	Different resources

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	and the associated plant adaptations				
4.2	Ecosystem Diversity: study the structure and functions of the different ecosystems of the world and the major problems affecting these systems	1, 2, 3, 4, 5	In-class lecture	Q & A	Different resources
5.1	Arctic tundra, structure and physical environment, vegetation types, plant adaptations, role of arctic tundra in global change.	1, 2, 3, 4, 5	In-class lecture	Q & A	Different resources
5.2	Boreal forest (taiga), structure and physical environment, vegetation types, plant adaptations	1, 2, 3, 4, 5	In-class lecture	Q & A	Different resources
6.1	Temperate deciduous forests (TDF), structure and physical environment, vegetation types, plant adaptations, role of spring ephemerals, nitrogen saturation phenomenon in TDF.	1, 2, 3, 4, 5	In-class lecture	Q & A	Different resources
6.2	Temperate grasslands (prairie and steppe), structure and physical environment, vegetation types, plant adaptations, effects of fire and grazing as major disturbances, Transient Maxima Hypothesis	1, 2, 3, 4, 5	In-class lecture	Q & A	Different resources
7.1	Deserts and Arid ecosystems, structure and physical environment, vegetation types, plant adaptations, the phenomenon of desertification, major nutrient inputs	1, 2, 3, 4, 5, 6	In-class lecture	Q & A	Different resources

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7.2	Temperate sclerophyllous vegetation of the Mediterranean-type climate, structure and physical environment, vegetation types, plant adaptations	1, 2, 3, 4, 5, 6	In-class lecture	Q & A	Different resources
8.1	Tropical grasslands (savanna), structure and physical environment, vegetation types, plant adaptations, effects of fire and grazing	1, 2, 3, 4, 5, 6	In-class lecture	Q & A	Different resources
8.2	Tropical rainforests, evergreen and deciduous forests, structure and physical environment, vegetation types, plant adaptations	1, 2, 3, 4, 5, 6	In-class lecture	Q & A	Different resources
9.1	Ecosystem consequences of land-use in the tropics	1, 2, 3, 4, 5, 6	In-class lecture	Q & A	Different resources
9.2	Human practices and misuses of ecosystems resources	1, 2, 3, 4, 5, 6	In-class lecture	Q & A	Different resources
10.1	Aquatic ecosystems (marine), Structure, functions and major problems	1, 2, 3, 4, 5	In-class lecture	Q & A	Different resources
10.2	Wetlands and Raised Bogs	1, 2, 3, 4, 5	In-class lecture	Q & A	Different resources
11.1	Deep Sea Communities	1, 2, 3, 4, 5	In-class lecture	Q & A	Different resources
11.2	Coral Communities patterns	1, 2, 3, 4, 5	In-class lecture	Q & A	Different resources
12.1	Fresh water	1, 2, 3, 4, 5	In-class lecture	Q & A	Different resources
12.2	Rivers	1, 2, 3, 4, 5	In-class lecture	Q & A	Different resources
13.1	Ecosystem Services		In-class lecture	Q & A	Different resources
13.2	Closed Systems, ex Dead Sea	1, 2, 3, 4,	In-class lecture	Q & A	Different resources
14.1	Presentations	1, 2, 3, 4, 5, 6, 7	In-class lecture Power point presentation	Q & A	Power point presentations using Teams

Teaching method: Synchronous lecturing

Evaluation methods include: Midterm Exam, Final Exam, In class discussion

Evaluation methods include: Term paper, Presentation

23 Evaluation Methods:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	Period (Week)	Platform
Midterm Exam	30		TBA	In-class exams
Final Exam	40	All topics	TBA	In-class exams
Term paper/ Presentations	30	Selected ecosystems	Last week of teaching	In-class presentation

24 Course Requirements (e.g: students should have a computer, internet connection, webcam, account on a specific software/platform…etc):

students should have a computer, internet connection, webcam, account on Microsoft Teams

25 Course Policies:

A- Attendance policies:

B- Absences from exams and submitting assignments on time:

C- Health and safety procedures:

D- Honesty policy regarding cheating, plagiarism, misbehavior:

E- Grading policy:

F- Available university services that support achievement in the course:

26 References:

A- Required book (s), assigned reading and audio-visuals:

No specific text book is required, however, _Ecology of World Vegetation by O. W. Archibold, Chapman and Hall, 1995._ will be of a great help.

Supplementary references will be given throughout the semester for each subject and these will include papers, figures, tables and other handouts

B- Recommended books, materials, and media:

27 Additional information:

Name of Course Coordinator: Prof Dr Said Damhoureyeh   Signature: ------------ Date: **26/ 02/ 2024**

Head of curriculum committee/Department: Signature: -------------------------------

Head of Department: Signature: -------------------------------

Head of curriculum committee/Faculty: Signature: -------------------------------

Dean: Signature: -------------------------------

<u>Copy to:</u>
Head of Department
Assistant Dean for Quality Assurance
Course File