

1	Course title	Ecology
2	Course number	5501461
3	Credit hours (theory, practical)	3
	Contact hours (theory, practical)	3
4	Prerequisites/corequisites	None
5	Program title	B.Sc. in Biological Science
6	Program code	-
7	Awarding institution	University of Jordan / Aqaba Branch
8	School	Faculty of Marine Sciences
9	Department	Coastal Environment
10	Level of course	Third and fourth year
11	Year of study and semester (s)	2019/2020 – Autumn Term
12	Final Qualification	B.Sc. in Biological Science
13	Other department (s) involved in teaching the course	NA
14	Language of Instruction	English
15	Date of production/revision	2019

#### 16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.

Office Number: 339

Office Hours: 12:00 – 1:00 Sunday, Tuesday, Thursday

Phone Number: 35029

Email Address: w.hayek@ju.edu.jo

#### 17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

None

#### 18. Course Description:

This course begins with an overview about humans and sustainability by introducing them to environmental problems and their causes with continuous connection with the concepts of sustainability. Then, the course will explain issues related to science, ecological principles, and sustainability (again), by explaining the basics of science, matter, energy and systems. In addition, this part of the course will discuss the different kinds of ecosystems, what are they and how do they work. Consequently, students will be introduced with basics about biodiversity and its revolution. In addition, there will be some lectures about the biodiversity and its relationships with the species interaction and the population control. And finally the course will provide some facts and concepts

about the human population and its impact.

### 19. Course aims and outcomes:

#### **A- Aims:**

Understanding ecology from environmental perspective and how to preserve it by connecting it with the sustainability with special emphasis on how human activities can impact the ecology in both ways (positively and negatively)

#### **B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to**

At the end of this module; students should be able to:

1. Explaining the concepts of environmentally sustainable society.
2. Describing how could environmentally sustainable societies grow economically.
3. Analysing how our ecological footprints affecting the earth.
4. Describing what is pollution and what can we do about it.
5. Explaining why do we have environmental problems.
6. Explaining and comparing the four scientific principles of sustainability.
7. Explaining what does science mean.
8. Explaining what does matter mean.
9. Demonstrating the changes to matter.
10. Explaining the flow of energy in ecosystems and demonstrating how it can be changed.
11. Demonstrating how can energy be changed in ecosystems.
12. Describing the systems.
13. Demonstrating how systems can be changed and relating them to ecosystems.
14. Describing the ecology and its relation to sustainability.
15. Analysing what keeps us and other organisms alive.
16. Comparing the major components of an ecosystem.
17. Explaining what happens to energy in an ecosystem.
18. Explaining what happens to matter in an ecosystem.
19. Analysing how do scientists study ecosystems.
20. Demonstrating biodiversity and why it is important.
21. Describing where do species come from.
22. Analysing how do geological processes and climate change affect evolution.
23. Analysing how do speciation, extinction, and human activities affect biodiversity.
24. Demonstrating what is species diversity and why is it important.
25. Comparing various roles do species play in ecosystems.

## 20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved Intended Learning Outcomes	Evaluation Methods	Reference
Environmental sustainability	Week 1	Dr. Wissam Yahia Hayek	Explaining the concepts of environmentally sustainable society?	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Environmental sustainable societies and economics	Week 1	Dr. Wissam Yahia Hayek	Describing how could environmentally sustainable societies grow economically.	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Ecological footprints	Week 2	Dr. Wissam Yahia Hayek	Analysing how our ecological footprints affecting the earth.	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Pollution, causes and solutions	Week 2	Dr. Wissam Yahia Hayek	Describing what is pollution and what can we do about it.	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Environmental problems	Week 3	Dr. Wissam Yahia Hayek	Explaining why do we have environmental problems.	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Principles of sustainability	Week 3	Dr. Wissam Yahia Hayek	Explaining and comparing the four scientific principles of sustainability.	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Science	Week 4	Dr. Wissam Yahia	Explaining what does science mean	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition,

		Hayek			2009. In addition to real case studies
Matter	Week 4	Dr. Wissam Yahia Hayek	Explaining what does matter mean	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Changes to matter	Week 5	Dr. Wissam Yahia Hayek	Demonstrating the changes to matter	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Energy	Week 5	Dr. Wissam Yahia Hayek	Explaining the flow of energy in ecosystems and demonstrating how can it be changed	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Changes to energy	Week 6	Dr. Wissam Yahia Hayek	Demonstrating how can energy be changed in ecosystems	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Systems	Week 6	Dr. Wissam Yahia Hayek	Describing the systems	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Systems' responses to changes	Week 7	Dr. Wissam Yahia Hayek	Demonstrating how can systems be changed and relating them to ecosystems	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Ecology concepts	Week 7	Dr. Wissam Yahia Hayek	Describing the ecology and its relation to sustainability	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Factors controlling living organisms	Week 8	Dr. Wissam Yahia Hayek	Analysing what keeps us and other organisms alive	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009 In addition to real case studies
Components of	Week	Dr. Wissam	Comparing the major	Discussions, quizzes, and	Miller G. and Spoolman S.,

ecosystems	8	Yahia Hayek	components of an ecosystem	home works	Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Energy flow in ecosystems	Week 9	Dr. Wissam Yahia Hayek	Explaining what happens to energy in an ecosystem	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Flow of matter in ecosystems	Week 10	Dr. Wissam Yahia Hayek	Explaining what happens to matter in an ecosystem	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Scientific studies of ecosystems	Week 11	Dr. Wissam Yahia Hayek	Analysing how do scientists study ecosystems	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Biodiversity and its importance	Week 11	Dr. Wissam Yahia Hayek	Demonstrating biodiversity and why is it important	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Origin of species	Week 12	Dr. Wissam Yahia Hayek	Describing where do species come from	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
The impact of geological processes and climate change on evolution	Week 12	Dr. Wissam Yahia Hayek	Analysing how do geological processes and climate change affect evolution	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Impacts of speciation, extinction and human activities on biodiversity	Week 13	Dr. Wissam Yahia Hayek	Analysing how do speciation, extinction, and human activities affect biodiversity	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies
Species diversity and its	Week 13	Dr. Wissam Yahia	Demonstrating what is species diversity and why is it	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition,

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importance		Hayek	important		2009. In addition to real case studies
Roles of species in ecosystems	Week 14	Dr. Wissam Yahia Hayek	Comparing various roles do species play in ecosystems	Discussions, quizzes, and home works	Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009. In addition to real case studies

## 21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- 1- Power point presentations
- 2- Discussions and questions
- 3- Presenting real case studies

## 22. Evaluation Methods and Course Requirements:

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

- 1- Home works
- 2- Quizzes
- 3- Presentations
- 4- Mid-term exam
- 5- Final exam

## 23. Course Policies:

### A- Attendance policies:

- Absence from lectures shall not exceed 15%.
- Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final examination and shall receive a mark of zero for the course.
- If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

### B- Absences from exams and handing in assignments on time:

- Absences without a medical or emergency excuse acceptable to and approved by the Dean of the college shall receive a mark of zero.

### C- Health and safety procedures:

NA

### D- Honesty policy regarding cheating, plagiarism, misbehaviour:

- Attempts to cheat during an exam or plagiarism for the written reports shall lead to a mark of zero in the exam or the home works and might lead to failure in the course with other consequences according to the regulations of the university.

**E- E- Grading policy:**

Mid-term Exam	30%
Semester Work	20%
Final Exam	50%
<b>Total:</b>	<b>100%</b>

94-100	4	<b>A</b>
87-93	3.75	<b>A-</b>
80-86	3.5	<b>B+</b>
75-79	3	<b>B</b>
70-74	2.75	<b>B-</b>
65-69	2.5	<b>C+</b>
60-64	2	<b>C</b>
55-59	1.75	<b>C-</b>
50-54	1.5	<b>D+</b>
45-49	1	<b>D</b>
40-44	0.75	<b>D-</b>
0-39	0	<b>F</b>

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

- Library sources and access to internet.

**24. Required equipment:** ( Facilities, Tools, Labs, Training....)

- Laptop and data show

**25. References:****Required book (s), assigned reading and audio-visuals:**

- Students will be supported with the material for the course at the end of each week.

**Recommended books, materials, and media:**

- Miller G. and Spoolman S., Essentials of Ecology, 5th Edition, 2009

**26. Additional information:**



Name of Course Coordinator: Wissam Al-Hayek    Signature: Wissam Al-Hayek    Date: 22<sup>nd</sup> Sep, 2019

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

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

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

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