



AN-NAJAH NATIONAL UNIVERSITY

Faculty of Higher Education

Course Outline-Ecology

Course title & number	Ecology-424516
Instructor(s) name(s)	Dr. Raed Alkowni
Contact information	ralkowni@najah.edu F1170
Semester & academic year	First Semester 2019/2020
Compulsory / Elective	Compulsory Course (3 credit hours)
Prerequisites	--
Course Description	This course is an advanced course in the foundations of ecology emphasizing population and community ecology. Lectures in basic ecological principles are supplemented with discussions of both current and historically important issues, as well as application of ecological principles to environmental problems
Course Objectives	To give a comprehensive understanding of ecological processes and factors that influence the populations and community structures and functions, including diversity of organisms. Ecological problem-solving skills and critical thinking use in finding answers and solutions to related ecological problems issues will be discussed.
Intended learning Outcomes (ILO's) and Competences	At the end of this course student will be able to: <ol style="list-style-type: none">1. Explain the ecological concepts in evolution niches that explaining the life and biodiversity2. Predict the balance of ecosystem and the biological interactions3. Address problems related to human impact on Environments4. Discuss the effective means to conserve and maintain the life diversity5. Discuss critically ecological and environmental problems related to human needs from water food and energy6. Suggest solutions for most universal ecological and environmental problems7. Self-regulating study and self-evaluate8. Apply computer and communication skills
Textbook & References	<ul style="list-style-type: none">• Miller G T, Spoolman S E. (2015). Essentials of Ecology, 7th Edition, Stamford, CT, USA: Cengage Learning.• Botkin, D. B. and Keller E. A. (2014). Environmental Science: Earth as a Living Planet (9th Ed.). John Wiley & Sons, Inc.• Conservation Biology for All. Sodhi, N. S. and P. R. Ehrlich



(Eds.). (2010). Oxford University Press.

- Ecology: Concepts and Applications. 5th Edition, (2009) Manuel Molles. McGraw-Hill Publishers.
- Elements of Ecology, 7th Edition, (2009). Thomas M. Smith & Robert Leo Smith. Pearson Education.
- Essentials of Ecology, 3rd Edition, (2010). Colin R. Townsend, Michael Begon & John L. Harper. Blackwell Publishing
- Articles in ecology (Up-to-date). Lectures notes and ICT will be available to the students at Moodle
- حسين السعدي (2013). علم البيئة . عدد الصفحات: 360

Assessments Criteria	Activity	Percent (%)
	First Exam	20
	Second Exam	20
	Participation/ Assignments/ Final Project	10
	Final	50
	Total	100

Teaching Methods Interactive lectures, Flipped Classroom; large group discussion; e-learning and PBL

Problem based learning/Project

Tools for evaluation:

Rubrics will be used for evaluating students during the *flipped classroom*, based on the following criteria:

• Ability to present the subject in meaningfully	Mark 40%
• Using helping aids for illustrating the subject (PowerPoint; videos; pictures; etc)	20%
• Participation in the classroom discussion	40%
	Total 100%

In *Problem based learning*, students will be proposed for real world problems in the subject of study. They will be asked to look up and find solution throughout the course. Students will be evaluated based on the final written project thesis, where should be evaluated as:

• Well definition of the problem	Mark 30%
• Proposing of solution	30%
• Discussion of the alternatives	30%
• Linguistic and printing issues	10%
	Total 100%



Course Outline:

Wk	Chapter Title	Reading	
		Miller	Botkin
1-2	<i>Introduction:</i> Why studying ecology science? What are the different levels of studying ecology; what are the differences among Ecological and environmental studies	Ch.1-3	Ch.1; Ch.2; Ch.3
3-9	<i>Evolution and Biodiversity:</i> Evolution; How evolution explain the life; How individuals adapted to environments; Biodiversity; What is biological diversity; Biological diversity basics; Biological evolution; Competition and ecological niches; How geography and geology affect biological diversity; the main threats to biodiversity; Natural and Human activities	Ch.4; Ch7 Ch.9	Ch.8
<i>First Exam</i>			
10-12	<i>Ecosystems Stability and Succession:</i> Energy efficiency and transfer efficiency; Ecological stability and succession; Chemical cycling and succession; How species change succession	Ch3.	Ch.5, Ch6
13-14	<i>Ecological and environmental issues</i> Human population growth and effects on the earth Pollutions and Global warming	Ch.6, Ch.9; Ch10	Ch.4, Ch. 11; Ch14- 24
<i>Second Exam</i>			
15-16	<i>Practical ecology</i> Conservation biology and Ecological restoration; Actions to conserve biology; Biotechnology use for conservation; Cycling of materials; Bioremediation Project final discussion	Ch.2	Ch2. Ch.3

Final Exam
