

DEREE COLLEGE SYLLABUS FOR:	
BI 1007 ENVIRONMENTAL ECOLOGY	3/2/4
UK LEVEL: 4 UK CREDITS:20	
(Updated Fall 2022)	
PREREQUISITES:	No prerequisites
CATALOG DESCRIPTION:	Fundamentals of the science of ecology, including an introduction to life and the physical environment, adaptations of organisms and evolution, population structure and regulation, species interactions, community ecology, biodiversity, ecosystems and ecological applications.
RATIONALE:	Environmental Ecology is a comprehensive approach to the science of ecology, from the basic principles of ecology to the current state of the field and its applications. It aims to give students a better understanding of ecology at the levels of the organism, the population, the community and the ecosystem. Through theory and selected examples and case studies students will develop an understanding of ecological interactions and of the impact of humans on species and ecosystems. Knowledge of ecology can provide insights and solutions to important contemporary environmental issues such as the decline of biodiversity and ecosystem management. This course provides an excellent background for environmental studies majors but also for every student from other disciplines who wishes to understand connections in nature.
LEARNING OUTCOMES:	As a result of taking this course, the student should be able to: <ol style="list-style-type: none"> 1. Demonstrate knowledge and understanding of core concepts and principles of ecology on life and the physical environment, ecosystem structure and function, adaptations of organisms and evolution, population structure and regulation, species interactions, community ecology, biodiversity and ecological applications. 2. Explain the scientific method and how it applies to the study of ecology, discussing specific case studies. 3. Evaluate the role of humans as agents of change in the natural environment and explain how ecological knowledge and applications can be used for studying and addressing contemporary environmental issues. 4. Develop skills for using basic methods in ecology, including the ability to use appropriate laboratory and field equipment and to acquire, process and evaluate data.
METHOD OFTEACHING AND LEARNING:	In congruence with the learning and teaching strategy of the college, the following tools are used: <ul style="list-style-type: none"> • Class lectures, interactive learning (class discussions, group work, flipped class activities), video presentations, and critical thinking questions/exercises discussed in class. • Laboratory and field activities (including practical work and laboratory reports). • Use of a Blackboard course management system, through which instructors post course information, lecture notes, assignments , announcements, as well as additional resources; use of textbook online platforms that provide additional learning resources.. • Group work in class/labs or with the help of Blackboard interactive tools (Discussion Board, Blog, Journal, Groups). • Office hours: students are encouraged to make full use of the office hours of their instructor, where they can ask questions, see their exam paper, and/or go over lecture/lab material.

ASSESSMENT:	<p>Summative:</p> <table border="1"> <tr> <td>Midterm examination (2 hours) (Multiple choice/short answers/essay questions)</td> <td>35%</td> </tr> <tr> <td>Final examination (2 hours) (Multiple choice/short answers/essay questions)</td> <td>40%</td> </tr> <tr> <td>Lab report(s)</td> <td>25%</td> </tr> </table> <p>Formative:</p> <table border="1"> <tr> <td>Essay questions (as homework assignments)</td> <td>0</td> </tr> <tr> <td>In-class or online quizzes</td> <td>0</td> </tr> </table> <p>The formative tests aim to prepare students for the examinations. The lab reports test Learning Outcome 4. The midterm examination tests Learning Outcomes 1, 2 and 3, focusing on the first part of the content. The final examination also tests Learning Outcomes 1, 2 and 3, focusing on the second part of the content.</p>	Midterm examination (2 hours) (Multiple choice/short answers/essay questions)	35%	Final examination (2 hours) (Multiple choice/short answers/essay questions)	40%	Lab report(s)	25%	Essay questions (as homework assignments)	0	In-class or online quizzes	0
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Essay questions (as homework assignments)	0										
In-class or online quizzes	0										
INDICATIVE READING:	<p>Required Reading: Cain, M.L., Bowman, W. and Hacker, S.D. 2021. <i>Ecology</i>. Fifth Edition, Sinauer Associates – Oxford University Press.</p> <p>Recommended Readings:</p> <ul style="list-style-type: none"> • Vodopich D.S. 2010. <i>Ecology Laboratory Manual</i>, McGraw Hill. • Ricklefs, R.E. 2014. <i>The Economy of Nature</i>, 7th edition, Palgrave Macmillan • Molles, Manuel C., Jr., and Sher Simon, Anna. 2019. <i>Ecology: Concepts and Applications</i>, McGraw Hill. 										
INDICATIVE MATERIAL: (e.g. audiovisual, digital material, etc.)	<p>REQUIRED MATERIAL: N/A</p> <p>RECOMMENDED MATERIAL: N/A</p>										
COMMUNICATION REQUIREMENTS:	Verbal skills using academic/professional English										
SOFTWARE REQUIREMENTS:	Word, PowerPoint, Excel										
WWW RESOURCES:	<ul style="list-style-type: none"> • Scientific American: www.sciam.com • • The World Wildlife Fund: http://panda.org/ • The Ecologist: http://www.theecologist.org/ • European Environment Agency on Biodiversity: http://www.eea.europa.eu/themes/biodiversity • International Union for the Conservation of Nature (IUCN): https://www.iucn.org/ • EU Nature and Biodiversity: https://ec.europa.eu/environment/topics/nature-and-biodiversity_en • Hellenic Society for the Protection of Nature: https://www.eepf.gr/el/ 										
INDICATIVE CONTENT:	<ol style="list-style-type: none"> 1. Introduction to the Science of Ecology 2. The Physical Environment 3. The Biosphere <ol style="list-style-type: none"> 3.1. Terrestrial Biomes 3.2. Aquatic Life Zones 										

4. Organisms
 - 4.1. Adaptations to Temperature, Water, Energy
 - 4.2. Evolution and Ecology
5. Populations
 - 5.1. Life History
 - 5.2. Distribution and Abundance
 - 5.3. Growth and Regulation
6. Species Interactions
 - 6.1. Competition
 - 6.2. Predation and Herbivory
 - 6.3. Parasitism
 - 6.4. Mutualism and Commensalism
7. Communities
 - 7.1. The Nature of Communities
 - 7.2. Change in Communities
 - 7.3. Biogeography and Biodiversity
8. Ecosystems
 - 8.1. Primary Production
 - 8.2. Energy Flow and Food Webs
 - 8.3. Pathways of Elements and Nutrient Regeneration
9. Ecological Applications: An Overview

LAB OUTLINE:

Lab activities are performed in the laboratory or in the field.
Examples of topics include, but are not limited to, the following:

- Safety Rules in Laboratory and Field Work
- Data Collection and Handling
- Monitoring the Environment: Measuring Abiotic Factors
- Kingdoms of Life
- Population Growth Exercise
- Life Tables and Survivorship Curves
- Measurement of Plant Species Abundance
- Measurement of Animal Species Abundance
- Mediterranean Plant Communities
- Species Diversity
- Soil Analysis
- Analysis of an Aquatic Environment