

Course Title	Ecology and Biodiversity Conservation			
Course Code	DLCLIMA503			
Course Type	Compulsory			
Level	MSc (Level 2)			
Year / Semester	1 st year/1 st semester			
Teacher's Name	Marios Andreou			
ECTS	7,5	Lectures / week		Laboratories/week
Course Purpose	<p>The purpose of the course is to provide knowledge and understanding of the science of ecology and the importance of biodiversity conservation. Basic concepts of ecology are explained, specifically the interactions between organisms and their environment and how these interactions affect the balance of ecosystems. The course also aims to understand the role of biodiversity in maintaining ecological balance, ecosystem well-being, and human prosperity. Throughout the course, students are expected to understand the threats of biodiversity and learn about the strategies and policies used for its conservation. The following is a week-by-week description of the topics that will be taught.</p>			
Learning Outcomes	<p>Upon successful completion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Define basic ecological terms, such as population, ecosystem, and biodiversity. • Explain how organisms interact with each other and with the environment in which they live. • Develop skills for the analysis and evaluation of ecological data to make decisions regarding environmental issues. • Identify the causes and consequences of environmental problems. • Apply ecological concepts to practical examples. • Define the term 'biodiversity' and its significance for the planet. • Recognize the diversity of species and ecosystems. • Interpret human-induced and natural threats affecting biodiversity, such as loss of habitats, pollution, climate change, etc. • Recognize the interconnected nature of environmental problems. • Develop collaborative skills to address common biodiversity-related issues. • Apply ecological concepts to conservation problems. • Explain how ecosystems function and are impacted by human activities. • Define the importance of ecosystem services for human well-being. • Understand the IUCN risk categories for species and habitats. 			

	<ul style="list-style-type: none"> • Evaluate the environmental impacts of human activities. • Develop critical thinking skills in environmental issues. • Propose solutions and measures for environmental issues. • Define the importance of conservation programs. • Compile information (conservation status, benefits, costs, etc.) for prioritizing conservation measures. • Act as responsible citizens for environmental protection. • Develop critical thinking skills for sustainability. 		
Prerequisites	None	Corequisites	None
Course Content	<p>Humans are rapidly changing the Earth's environment, yet does not fully understand and/or ignores the consequences of these changes. For example, human activity has increased the amount of nitrogen cycling between land and water, altered the land cover across the globe, and raised the atmospheric concentration of CO₂. Changes like these threaten the diversity of life on Earth and also jeopardize the support system for life itself. Due to the rapid pace of environmental changes in the early twenty-first century, it is imperative to better understand the ecology of the Earth.</p> <p>Moreover, across the world, biocommunities that took millions of years to develop (e.g., tropical forests, coral reefs, extensive steppes, etc.) are disappearing due to human activities. Thousands, if not tens of thousands, of species are expected to face the same fate in the coming decades. Furthermore, today's mass extinctions differ from those of geological history (natural disasters on a large scale) because they have a human face. The rate of species extinction today is multiple times higher than the rate of extinction in the past and is linked to the increase in the human population and its associated material needs.</p> <p>All of the above are addressed in the course of 'Ecology and Biodiversity Conservation'. The aim of the course is to study the relationships between organisms and between organisms and the natural environment in which they live, and how these relationships affect many aspects of the natural world (including the distribution and abundance of organisms, the variety of species living in a place, and the flow of energy in nature). Additionally, it aims to highlight the biological diversity of the planet, explore human impacts on species, communities, and ecosystems, and develop practices for preventing species extinction, preserving genetic diversity, and protecting/restoring species and ecosystems.</p>		
Teaching Methodology	<p>The course is structure based on the principles of distance learning, good practices as well as the directions of the regulatory authority, and finally the Pedagogical Framework developed and employed by our University. Also, through the design and development of the Distance Learning courses, interaction, communication and collaboration are implemented in 3 levels: 1) between instructor-students, 2) among students, and 3) between students-content. The course is entirely taught online through the Moodle LMS platform. Required and additional readings (e.g. books, articles, websites, newsletters, open educational resources, case studies) in combination with lecture notes are available for students to use via the LMS. Additionally, a variety of appropriate educational material is available to students via the</p>		

	<p>LMS platform such as narrated presentations, annotated presentations, interactive presentations and videos, interactive, learning scenarios, gamification activities, use of avatars and digital twins, podcasting documents, online quizzes and midterms). Numerous new and emergent technologies are employed such as communication tools (e.g. videoconferencing, audio conferencing and text conferencing), collaboration tools (e.g. discussion forums, blogs and wikis) and content development tools.</p> <p>Students are encouraged to interact with their peers and the instructor via the platform and various technological tools, aiming to become active members of the online learning community developed within the course. Finally, the use of various technological tools, is expected by the students in order to develop their own learning community.</p>
<p>Bibliography</p>	<ul style="list-style-type: none"> • FAO, IUCN CEM & SER. 2021. Principles for ecosystem restoration to guide the United Nations Decade 2021–2030. Rome, FAO. • IUCN (2016). An Introduction to the IUCN Red List of Ecosystems: The Categories and Criteria for Assessing Risks to Ecosystems. Gland, Switzerland: IUCN. • IUCN 2012. Guidelines for Application of IUCN Red List Criteria at Regional and National Levels: Version 4.0. Gland, Switzerland and Cambridge, UK: IUCN. (pages 1-20). • IUCN. (2012). IUCN Red List Categories and Criteria: Version 3.1. Second edition. Gland, Switzerland and Cambridge, UK: IUCN. (pages 1-29). • Keith D.A. et al. 2015. The IUCN Red List of Ecosystems: Motivations, Challenges, and Applications. Conservation Letters, 8(3): 214–226. • Lindenmayer D., Bowd E. 2022. Critical Ecological Roles, Structural Attributes and Conservation of Old Growth Forest: Lessons from a Case Study of Australian Mountain Ash Forests. Frontiers in Forests and Global Change 5:878570. • Molles C.M., Sher A.A. 2019. ECOLOGY, Concepts and Applications (9th Edition), McGraw Hill LLC. • Murray N.J., Ma Z., Fuller R. 2015. Tidal flats of the Yellow Sea: A review of ecosystem status and anthropogenic threats. Austral Ecology 40: 472–481. • Primack R. 2004. A primer of Conservation Biology (3rd Edition) (R. Primack, M. Αριανούτσου - Φαραγγιτάκη, Ε. Βαλάκος, Δ. Δανιηλίδης, Γ. Διαμαντόπουλος, Ι. Παντής, Π. Παφίλης, Μετ.). Εκδόσεις αεί. • Primack R. 2017. A primer of Conservation Biology (5th Edition) (R. Primack, M. Αριανούτσου - Φαραγγιτάκη, Π. Δημητρακόπουλος, Μετ.). University Studio Press. • Primack R.B., Sher A.A. 2016. Essentials of Conservation Biology (5th Edition). • Primack R.B., Sher A.A. 2022. An Introduction to Conservation Biology (3rd Edition).

	<ul style="list-style-type: none"> • Schroter M., Bonn A., Klotz S., Seppelt R., Baessler C. 2019. Atlas of Ecosystem Services - Drivers, Risks, and Societal Responses. Springer International Publishing AG • Sher A.A., González-Sargas E. 2026. An Introduction to Conservation Biology (4th Edition). • The EU birds and habitats directives https://op.europa.eu/en/publication-detail/-/publication/7230759d-f136-44ae-9715-1eacc26a11af • Vogiatzakis I.N. et al. 2020. Towards implementing Mapping and Assessment of Ecosystems and their Services in Cyprus: A first set of indicators for ecosystem management. One Ecosystem 5: e47715.
Assessment	<ul style="list-style-type: none"> • Two Weekly Educational Activities (10%) • Assignment 1 (20%) • Assignment 2 (20%) • Final Exam (50%)
Language	Greek / English