

COURSE OUTLINE Ecosystems-based approaches for the Sustainable Development of Water Resources

EDUCATION LEVEL	7		
CODE	WBCC - 535op	SEMESTER	2 nd
TITLE	Ecosystems-based approaches for the Sustainable Development of Water Resources		
TEACHING ACTIVITIES	HOURS/WEEK	ECTS	
Lectures, Practice exercises, homeworks	3	6	
TYPE OF COURSE	Elective course (in both specializations)		
PREREQUISITE KNOWLEDGE	-		
LANGUAGE OF INSTRUCTION AND ASSESSMENT	Greek		
AVAILABILITY TO ERASMUS STUDENTS	-		
WEBSITE (URL)	https://eclass.uoa.gr/courses/GEOL583/		

LEARNING OUTCOMES

Learning Outcomes/Subject Specific Competences
<p>The course consists of a theoretical part and practical exercises that contribute to the understanding of ecosystem services and their utilization. In the context of the course, the services offered by aquatic and semi-aquatic ecosystems are taught, how they can be used to protect these ecosystems as well as sustainable utilize water resources and to mitigate climate change. Emphasis will be placed on ecotourism as an important tool for ecosystem-based approaches</p> <p>Upon successful completion of the course, postgraduate students will be able to:</p> <p>Understand what ecosystem services are</p> <p>Understand the importance of water for the functioning of ecosystems,</p> <p>Know the ecosystem services of aquatic ecosystems</p> <p>Use ecosystem-based approaches for the sustainable development of water resources</p> <p>Use ecosystem-based approaches to mitigate the effects of climate change</p> <p>Understand the increasing needs for learning ecotourism practices,</p> <ul style="list-style-type: none"> • Use ecotourism as a means to preserve ecosystems and improve the conditions of the biosphere under conditions of climate change.

Generic Competences
<p>Search, analyse and synthesize data and information</p> <p>Promote free, creative and inductive thinking</p> <p>Literature review</p> <p>Autonomous work</p> <p>Decision making</p> <p>Work in an interdisciplinary environment</p> <p>Respect for the natural environment</p>

COURSE CONTENT

<p>The structure and function of each ecosystem, as well as the Biosphere as a whole, depends significantly on the level of water availability. The relationship of biotic factors with abiotic factors and their interdependence with water resources is what maintains, through a complex of processes, the level of biodiversity within tolerable limits, especially under the changes caused by climate change. This relationship between the factors is significantly helped if they are approached through the ecosystem that the biotic and abiotic themselves compose. These ecosystem-based approaches, in addition to their contribution to maintaining the balance between factors and in the wider Biosphere, contribute significantly to the sustainable development of water resources, using various tools. One of these tools and practices is ecotourism, which can be used to achieve better conservation of these ecosystems and, as an additional consequence, better water management in these areas.</p> <p>Teaching objectives:</p> <p>Introduction to the complexity of the structure and function of ecosystems in relation to water,</p> <p>Study of the needs of biotic factors in water, under the constant pressure of climate change,</p> <p>Introduction to ecosystem services</p> <p>Understanding of ecosystem-based approaches based on contemporary literature,</p> <p>Uses of ecosystem approaches as a tool for water management and climate change mitigation</p> <ul style="list-style-type: none"> • Use of ecotourism practices as a means of protecting ecosystems and the Biosphere in general.

LEARNING ACTIVITIES - TEACHING and ASSESSMENTS METHODS

MODE OF DELIVERY	Distance learning
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USE OF INFORMATION AND COMMUNICATION TECHNOLOGY	<p>In Teaching:</p> <ul style="list-style-type: none"> - Presentations using multimedia (images, animation, video). - Use of computers and specialized software and / or the use of MS programs (mainly MS Excel). - Completion of questionnaires. - PowerPoints (ppt) uploads in the e-class platform. <p>In Communication with students:</p> <ul style="list-style-type: none"> - Support of the learning process through the electronic platform e-Class (announcements, information, messages, documents, assignments, questionnaires, exercises, diary, user groups, multimedia, links, grading, e-book, etc.), and through personal contact. 											
PLANNED LEARNING ACTIVITIES	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Activity</th> <th style="text-align: left;">Semester Workload</th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td>3 hr x 13 weeks</td> </tr> <tr> <td>Practice Exercises</td> <td>30 hr</td> </tr> <tr> <td>Individual Project</td> <td>70 hr</td> </tr> <tr> <td>Total</td> <td>139 hr</td> </tr> </tbody> </table>	Activity	Semester Workload	Lectures	3 hr x 13 weeks	Practice Exercises	30 hr	Individual Project	70 hr	Total	139 hr	
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ASSESSMENT METHODS AND CRITERIA	<p>Individual Exercises 20% Individual HomeWorks 30% Final Exams 50%</p>											

TEXTBOOKS - BIBLIOGRAPHY

Kumar, A. 2022. Ecosystem-Based Adaptation: Approaches to Sustainable Management of Aquatic Resources. Elsevier Science

Moore D.W. 2023. Reviving the Planet: The Power of Ecosystem-based Approaches to Tackle Climate Change

O'Higgins, T.G., Lago, M., DeWitt. T.H. (eds.) 2020. Ecosystem-Based Management, Ecosystem Services and Aquatic Biodiversity. Theory, Tools and Applications. Springer

Arraiza M.P., J.V. López-Alvarez and J.L. García-Rodríguez (eds.) Management of Sustainable and Ecological Tourism. Fundación Conde del Valle de Salazar. Pp. 686. (2015).

Iakovoglou V. and G.N. Zaimis. 2017. Enhancing rural areas while safeguarding ecosystems through sustainable practice of Ecosystem Based Approaches (EBA) with emphasis on ecotourism. International Journal of Economic Plants, 4(3): 134-136.