

COURSE OUTLINE Ecohydrology and semi - aquatic ecosystems

EDUCATION LEVEL	7		
CODE	WBCC-523we	SEMESTER	2 nd
TITLE	Ecohydrology and semi - aquatic ecosystems		
TEACHING ACTIVITIES	HOURS/WEEK	ECTS	
Lectures, Practice exercises, Presentation, Team Homework	3	6	
TYPE OF COURSE	Main course in the specialization «Water in conditions of excess»		
PREREQUISITE KNOWLEDGE	-		
LANGUAGE OF INSTRUCTION AND ASSESSMENT	Greek		
AVAILABILITY TO ERASMUS STUDENTS	-		
WEBSITE (URL)	https://eclass.uoa.gr/courses/GEOL579/		

LEARNING OUTCOMES

Learning Outcomes/Subject Specific Competences
<p>The course teaches the basic concepts of ecohydrology, its main features and its main applications. It also, makes special reference to semi-aquatic ecosystems, which ecohydrology directly applies too. In the context of the course, which includes both a theoretical and a practical part, the basic principles and concepts of ecohydrology and the main characteristics of semi-aquatic ecosystems that differentiate them from other ecosystems, the problems they face and the impending effects of climate change are taught.</p> <p>Upon successful completion of the course, postgraduate students will be able to:</p> <ul style="list-style-type: none"> Recognize the uniqueness and importance of ecohydrology and its basic principles Understand the advantages and disadvantages of applying ecohydrology in relation to hydrology and ecology Recognize semi-aquatic ecosystems and their characteristics Apply principles of ecohydrology to management plans for aquatic and semi-aquatic ecosystems Understand what riparian areas and wetlands are, their main features and ecosystem services Assess the impacts on semi-aquatic ecosystems from human activities Understand the effects of climate change on semi-aquatic ecosystems Apply sustainable ways of managing aquatic and semi-aquatic ecosystems as well as best practices for their protection Realize the utility of ecohydrological approaches to mitigating the impacts of climate change on ecosystems <p>Finally, in the context of the course they will understand the importance of the interdisciplinary approach (hydrology and ecology) for the sustainable management of semi-aquatic ecosystems.</p>

Generic Competences
<ul style="list-style-type: none"> Search, analyse and synthesize data and information Promote of free, creative and inductive thinking Literature review Teamwork Generation of new research ideas Work in an interdisciplinary environment Project planning and management Respect for the natural environment

COURSE CONTENT

<p>Ecohydrology is an interdisciplinary field that studies the interactions between water and ecological systems. Its application helps to more effectively implement sustainable management plans for water resources. The multiple uses of aquatic and semi-aquatic ecosystems make imperative the need for a new approach that takes into account hydrology as well as ecology. Special mention is made to semi-aquatic ecosystems and their importance for humans since the ancient times. Emphasis is placed on riparian areas and wetlands due to their importance for the Mediterranean region. The impending effects of climate change make the sustainable management and protection of these two ecosystems a priority for the Mediterranean.</p> <p>The objective of this course is to provide the basic concepts of ecohydrology and the main characteristics, differences, advantages and disadvantages in relation to hydrology and ecology, and the development of plans for the proper utilization and protection of water ecosystems based on the principles of ecohydrology. Students will be taught about the uniqueness of semi-aquatic ecosystems, what riparian areas and wetlands are and their benefits, monitoring methods and anthropogenic impacts on semi-aquatic ecosystems</p> <p>Educational objects:</p> <ul style="list-style-type: none"> Understanding the basic principles of ecohydrology and the advantages of its application Explain the importance of sustainable riparian and wetland management for human well-being

Ecosystem services of semi-aquatic ecosystems and anthropogenic pressures
 Learning ecohydrological approaches for sustainable ecosystem management
 Assessment protocols for semi-aquatic ecosystems
 • Ecohydrology-based best practices for mitigating the impacts of climate change on semi-aquatic ecosystems

LEARNING ACTIVITIES - TEACHING and ASSESSMENTS METHODS

MODE OF DELIVERY	Distance learning	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY	In Teaching: – 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. In Communication with students: – 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	Activity	Semester Workload
	Lectures	3 hr x 13 weeks
	Practice Exercises	20 hr
	Presentation	25 hr
	Team Project	55 hr
	Total	139 hr
ASSESSMENT METHODS AND CRITERIA	Presentation 20% Team Project 30% Final Exams 50%	

TEXTBOOKS - BIBLIOGRAPHY

D'Odorico P., Porporato A. (Editor), Wilkinson Runyan C. (Eds) 2019. Dryland Ecohydrology. 2nd Edition, Springer
 Parsons X. (ed.) 2020 Handbook of Ecohydrology Hardcover. Callisto Reference
 National Research Council. 2020 Riparian Areas: Functions and Strategies for Management. National Academy Press
 Mitsch W.J., Gosselink J.G., Anderson C.J. (Author), Fennessy M.S. 2023 Wetlands 6th edition. Wiley
 MedECC 2020 Climate and Environmental Change in the Mediterranean Basin – Current Situation and Risks for the Future. First Mediterranean Assessment Report [Cramer, W., Guiot, J., Marini, K. (eds.)] Union for the Mediterranean, Plan Bleu, UNEP/MAP
 Zaimes, G.N., Iakovoglou, V. 2021. Assessing riparian areas of Greece - An overview. Sustainability 13, 309.
 Zaimes, G.N. 2020. Mediterranean Riparian Areas- Climate change implications and recommendations. Journal of Environmental Biology 41, 957-965.
 EU Green Deal