COURSE OUTLINE

VALUES, FUNCTIONS AND MANAGEMENT OF WETLANDS

(1) GENERAL

SCHOOL	TECHNOLOGY		
DEPARTMENT	FORESTRY, WOOD SCIENCES & DESIGN		
LEVEL	POSTGRADUATE		
COURSE CODE	**MB114**	**SEMESTER**	**1st**
COURSE TITLE	VALUES, FUNCTIONS AND MANAGEMENT OF WETLANDS		

ACTIVITIES	**WEEKLY HOURS**	**ECTS**
Lectures	2	6
TOTAL	2	6

TYPE OF COURSE	OBLIGATORY
PREREQUISITES	NO
LANGUAGE OF TEACHING AND EXAMINATION	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
WEBPAGE COURSE (URL)	https://eclass.uth.gr/courses/FWSD_P_109/

(2) LEARNING OUTCOMES

Learning Outcomes

Wetlands are a very important natural resource, which – despite the increased environmental awareness of the public, as well as a significant part of the administration, in recent years – are still under significant threats and pressures from anthropogenic activities and climate change. The purpose of the course is to promote modern and advanced knowledge of the importance of wetlands for humans and biodiversity (ecosystem services) and to understand their management practices with the aim of preserving or restoring them.

Upon successful completion of the course, the student will be able to:

- Identifies the values and functions of wetland ecosystems with an emphasis on their importance for biodiversity, climate change mitigation, the water cycle and human economic activities and recreation based on examples from extensive global and Mediterranean wetlands, but from wetland restoration cases in Europe and Greece (e.g. Koroneia and Karla lakes).
- Recognizes the categories of wetlands in various inland and coastal ecosystems, such as lakes, marshes, swamps, river floodplains, riparian zones, lagoons, salt marshes, etc.
- Distinguishes the different types of wetlands (eg by habitat type) within natural or man-made wetland ecosystems, such as reed beds, riparian forests, hydrophyte phytocommunities and wet meadows.
- Knows basic concepts of national, European and international legislation related to wetlands (e.g. Ramsar Convention, European Directives for the management of Natura 2000 network areas, responsibilities of the Protected Area Management Bodies in Greece).
- Understands key wetland management issues at the catchment level taking into account the constraints at hand. Also, in this context, to understand how wetland management links different scientific specialties and requires a good understanding of the functions of all natural ecosystems and the effects of human activities.
- Recognizes how wetlands are treated by the different interest groups of a region (local government, tourism entrepreneurs, farmers, ranchers, fishermen, etc.).
- Recognizes the threats and pressures that wetlands are under and to propose ways to deal

with the resulting problems through their institutionalized management.
• Understands the concepts of evaluation, mapping, classification and scientific monitoring of wetlands.
• Recognize the need to create or restore wetlands and know the utility of artificial wetlands as wastewater treatment facilities.

General Skills

(3) COURSE CONTENT

In the theoretical part of the course the student is taught and learns about:

- **Course Update – Introduction to Wetland Management.** Definitions of wetlands (broad and more targeted). Basic components of wetlands. An introduction to wetland values and their importance to humans and biodiversity.
- **Wetland categories and types.** Wetland categories (lakes, rivers, lagoons, salt marshes, artificial wetlands). Wetland types (swamps, bogs, bogs, riparian forests, river floodplains, reedbeds, wetlands). Wetland types of pits (Directive 92/43/EEC – Natura 2000 Network).
- **Values and functions of wetlands.** Wetland values (in detail the 20 most important). Wetland functions. Wetland ecosystem services. Introduction to the methodology of mapping and assessment of ecosystem services (MAES / Mapping and Assessment of Ecosystem Services).
- **Wetlands and protected areas.** International and European legislation. National legislation – Protected Area Management Bodies. Because most wetlands are part of a protection regime.
- **Wetland users – Man and nature.** Human activities in wetlands from ancient times to the present. Traditional activities that survive to this day. Wetlands and economy. Wildlife (birds, fish, amphibians, reptiles, invertebrates) and flora. How wetland uses and users can be sources of inspiration and background material for the development of ecotourism activities.
- **Wetland management – The first steps.** Search data. User mapping, habitat mapping and assessment of wetland habitats. Identify threats and pressures on wetlands, and the problems they cause. Identifying fundamental management issues – Purpose and objectives.
- **Wetland management – Active management methods.** Water management methods. Vegetation - habitat management methods. Wetland management methods – Infrastructure needs. Scientific monitoring as a key element of wetland management.
- **Wetland management – Management planning and monitoring.** Management plan structure. The wetland to be managed as an element of the wider watershed. Impacts – impacts on the wetland from other natural ecosystems and human activities. Stakeholders – Who else is involved in management and how. Wetland management planning as a stand-alone unit or as part of a wider area.
- **Wetland management – Implementation of management.** Who will implement the management and monitoring. Funding management. Management implementation (one-time and recurring). Dealing with emergency situations. Interpretation of results.
- **Wetland management – Implementation of monitoring.** Who is watching and what. What we pay attention to when surveying and taking measurements in wetlands. Drafting of an annual monitoring report. Management evaluation. Management review proposals. Preparation for the next management period.
- **Artificial wetlands.** Applications. Feasibility – scale – limitations. Monitoring operation and efficiency.
- **Transboundary wetlands.** Typical examples. Focus on specific examples from the Balkans, Europe, other continents. Policy and international cooperation issues. Presentations of first

package of final course assignments.

- **Presentations of final course assignments**.

Every four weeks assignments are given (individual or in groups of 2-3 people) for students to practice on topics related to the subject of the course, while the final assignment (3rd) will be individual and the student will have to present it publicly and orally at the end of the semester of the MSc. The final paper is delivered in printed and electronic format, and its presentation lasts 15' and is followed by questions for 5-10' from the students present. The teacher, if necessary, intervenes for commentary, observations and corrections.
Students are graded for the overall performance of their final paper (a) by 70% on the content and editorial specifications and (b) by 30% on the preparation of the electronic presentation and its oral support. These grades count for a total of 40% of the overall grade that the students will receive after the final written examination of the theory.

(4) TEACHING AND LEARNING METHODS - EVALUATION

COURSE DELIVERY METHOD	In class and remotely
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	• Use of PCs, ppt slides, projector • Learning process support through the e-class electronic platform • Interactive Whiteboard • Eight (8) PCs in the Laboratory for student exercise in a questionnaire processing program
MANAGEMENT OF TEACHING	

Activity	***Semester Workload***
Lectures	26
Three (3) assignments related to the subject of the course	54
Independent Study	70
Course Total (25 workload hours per credit unit)	***150***

STUDENT EVALUATION	In order to check the achievement of the learning objectives, they will be evaluated based on three (3) tasks in total and h written examination of the course. In order to secure a passable grade (at least 5) it is necessary to achieve a passable grade in weighted average of the three (3) assignments and the final exam. I. The written final exam (60%) includes: • Short answer questions from all the material taught (lectures, other material and book). • Multiple choice questions (with a negative marking factor). • True-False questions (with a negative scoring factor). • Short answer questions on a text that (possibly) will be given for study and editing during the examination. II. Successful delivery of three (3) assignments and presentation of the individual final (3rd) assignment (40%)

(5) RECOMMENDED-BIBLIOGRAPHY

- Suggested Bibliography:

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Benstead P., M. Drake, P. José, O. Mountford, C. Newbold and J. Treweek. 1997. The Wet Grassland Guide: Managing floodplain and coastal wet grasslands for wildlife. Royal Society for the Protection of Birds, Institute of Terrestrial Ecology and English Nature. UK. 254 pp.
Benstead P.J., P.V. José, C.B. Joyce and P.M. Wade. 1999. European Wet Grassland Guide. Guidelines for management and restoration. Royal Society for the Protection of Birds, Sandy. UK. 169 pp.
Bonnet B., S. Aulong, S. Goyet, M. Lutz and R. Mathevet. 2005. Integrated Management of Mediterranean Wetlands. Tour du Valat, Arles, France, 159 pp. Publications MedWet / Tour du Valat – number 13.
Crivelli A.J. and G. Catsadorakis (eds). 1997. Lake Prespa, Northwestern Greece: A unique Balkan wetland. Reprinted from Hydrobiologia, vol. 351, Kluwer Academic Publishers, 196pp.
Décamps H. and O. Décamps. 2001. Mediterranean riparian woodlands. Tour du Valat, Arles, France, 139 pp. Publications MedWet / Tour du Valat – number 12.
Duncan P. 1992. Horses and grasses. Ecological Studies, vol 87, Springer-Verlag, New York.
Frazier S. 1996. An overview of the world's Ramsar sites. Wetlands International Publ. 39. 58 pp.
Gattenlöhner U., M. Hammerl-Resch and S. Jantschke (eds.). Reviving Wetlands – Sustainable Management of Wetlands and Shallow Lakes, Guidelines for the Preparation of a Management Plan. Global Nature Fund, Living Lakes, EU LIFE Programme, DG Environment.
Gerakis P. A. (ed). Conservation and Management of Greek Wetlands. Proceedings of a Greek Wetlands Workshop, held in Thessaloniki, Greece, 17-21 April, 1989. IUCN, Gland, Switzerland. xii + 493 pp.
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Jones W., J. Eldridge, J.P. Silva and N. Schiessler. 2007. LIFE and Europe's rivers – Protecting and improving our water resources.
European Commission, Environment Directorate-General. pp 50.
Keddy P. 2002. Wetland Ecology, Principles and Conservation. Cambridge Studies in Ecology. Cambridge University Press.
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Papayannis T. (ed). 2008. Action for Culture in Mediterranean wetlands. ISBN 978-960-89972-0-2. Med-INA, Athens, Greece.
Papayannis T. and D. Pritchard (eds). 2011. Culture and wetlands in the Mediterranean: An evolving story. ISBN 978-960-89972- 2-6. Med-INA, Athens, Greece.
Pearce F. 1996. Wetlands and Water resources. Tour du Valat, Arles, France, 82 pp. Publications MedWet / Tour du Valat – number 5.
Pearce F. and A.J. Crivelli. 1994. Characteristics of Mediterranean Wetlands. Tour du Valat, Arles, France, 88 pp. Publications MedWet / Tour du Valat – number 1.
Rosecchi E. and B. Charpentier. 1995. Aquaculture in Lagoon and Marine Environments. Tour du Valat, Arles, France, 94 p. Publications MedWet / Tour du Valat – number 3.
Sadoul N., J. Walmsley and B. Charpentier. 1998. Salinas and nature conservation. Tour du Valat, Arles, France, 96 p. Publications MedWet / Tour du Valat – number 9.
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Silva J.P., L. Phillips, W. Jones, J. Eldridge and E. O'Hara. 2007. LIFE and Europe's wetlands – Restoring a vital ecosystem. European Commission, Environment Directorate-General. pp 66.
Skinner J. and S. Zalewski. 1995. Functions and values of Mediterranean Wetlands. Tour du Valat, Arles, France, 80 p. Publications MedWet / Tour du Valat – number 2.
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Βραχνάκης Μ., Γ. Φωτιάδης και Ι. Καζόγλου. 2011. Τύποι Οικοτόπων Εθνικού Πάρκου Πρεσπών. Εταιρία Προστασίας Πρεσπών (επ. έκδοσης), ISBN: 978-618-80029-0-6. Σελ. 104 + Παραρτήματα.
Γεράκης Π.Α., Σ. Τσιούρης και Β. Τσιαούση (συντονιστές έκδοσης). Υδατικό καθεστώς και βιωτή υγροτόπων –

Προτεινόμενη ελάχιστη στάθμη λιμνών και παροχή ποταμών Μακεδονίας και Θράκης. Μουσείο Γουλανδρή Φυσικής Ιστορίας / Ελληνικό Κέντρο Βιοτόπων-Υγροτόπων. Θέρμη. 256 σελ.
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- Related scientific journals:

- *Biological Conservation*
- *Conservation Biology*
- *Developments in Hydrobiology / Hydrobiologia*
- *Ecohydrology and Hydrobiology*
- *Ecological Applications*
- *Ecology*
- *Journal of Ecology*
- *Journal of Environmental Management*
- *Journal of Vegetation Science*
- *Restoration Ecology*
- *Wetlands*
- *Wetlands Ecology and Management*