

Assessment, Modelling and Scenarios for Ecosystems Management (mandatory course)

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GENERAL

SCHOOL	School of Environment		
ACADEMIC UNIT	Department of Environment		
LEVEL OF STUDIES	Postgraduate		
COURSE CODE	ENV540	SEMESTER	SPRING
COURSE TITLE	Assessment, Modelling and Scenarios for Ecosystems Management		
INDEPENDENT TEACHING ACTIVITIES		TEACHING HOURS	CREDITS
Lectures			
Field Trips			
Workshops			
Course Total			6
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE	general background		
PREREQUISITE COURSES:	-		
COURSE WEBSITE (URL)	https://aegeanmoodle.aegean.gr		

LEARNING OUTCOMES

Learning outcomes
<p>Upon successful completion of this subject, students will be:</p> <ul style="list-style-type: none"> • Familiarized with Ecosystem Management approaches and practices in the real world, i.e. with a view of the challenges and difficulties involved in approaching a complex land use system and its stakeholders, dealing with diverse scientific knowledge, collecting the necessary information and designing a management approach; • Familiarized with the concept of Sustainable Development Goals (SDGs) of the UN and its relationship with Ecosystem Management; • Able to understand how Sustainable Development Goals (SDGs) are translated into concrete objectives for a particular area and land use system; • Able to analyze a variety of different types of data and information and translate these into inputs for the design and the implementation of the management approach; • Able to work in groups: divide tasks, collect and analyze data, write a report, prepare and deliver a presentation; • Able to work in multidisciplinary groups and to combine the different research approaches

- into an integrated management plan;
- Able to build an argument and defend it in public;

General Competences

1. Analysis and synthesis of data and information, with the use of the necessary technology
2. Adapting to new situations
3. Decision-making
4. Team work
5. Working in an interdisciplinary environment
6. Respect for difference and multiculturalism
7. Respect for the natural environment
8. Showing social, professional and ethical responsibility and sensitivity to gender issues
9. Criticism and self-criticism
10. Production of free, creative and inductive thinking

SYLLABUS

This course introduces students to Ecosystem Management: some key themes are explored, concepts and approaches are discussed and a real world example is used to design a management plan for a specific area and land use systems.

The course is divided into four parts that correspond to its four weeks:

In the first week, students are introduced to the key themes and concepts, including the Sustainable Development Goals (SDGs) of the United Nations that serve as a backdrop for understanding real world situations and placing real problems into a more global setting. Also, concepts such as land use systems will be introduced, that can incorporate complex socio-ecological systems' dynamics with management design and application practices. Students will be divided into five groups, each one corresponding to a different aspect of the system / area and its management:

- (a) Biodiversity & Ecosystem Services;
- (b) Waste - and By-products Management Group;
- (c) Social aspects – stakeholders and environmental management;
- (d) Agri-food / local products supply chains;
- (e) Farm management and agri-environmental policies at the local and national levels.

In the second week, students will complete an **individual project** (assigned to them during the first week) related with the groups' themes. The completion of this small project will involve field work and/or meta-analysis of data depending on the type and theme of the individual project. These individual projects will also serve as inputs for the final group projects.

In the third week, students will complete a 5-minute **individual presentation on a selected list of issues related to the overall concepts**. These will be performed by a selected number of students (2 from each group) via presentations in front of all students under the coordination and supervision of University of the Aegean staff. The debate themes will be the same for each thematic group. Each student will have to write and deliver a 500 words essay of the pros and cons of this theme and will have to be prepared to debate the issue with other students. The indicative titles are:

1. Biodiversity: olive plantations are beneficial / harmful for biodiversity (soils, carbon, plants);
2. Waste: olive waste is a "natural product" and should not be treated as waste/ is environmentally harmful waste and should be treated as such;
3. Social aspects – stakeholders and environmental management: It is impossible/ possible to turn Lesvos' economy into a circular economy;
4. Agri-food / local products supply chains: It is impossible / possible to have an economically viable agri-food sector on Lesvos;
5. Agri-environmental Policies: policies and subsidies have not / have helped the farm sector of Lesvos and local environment and biodiversity.

In the fourth week, students will complete and present a group project into these themes:

- (a) Biodiversity: the group report will (i) quantify the biodiversity and ecosystem services status of the olive land use system and compare it with alternative land use types on Lesvos, with

- possible differentiations between different olive grove management practices and (ii) make proposals for future management;
- (b) Waste -and by-products Management: the group report will (i) estimate waste generation and treatment currently from the land use system and (ii) make proposals for future management, including, reuse, development of new products, etc.;
 - (c) Social aspects – stakeholders: the group report will (i) perform an analysis of the Q sorts gathered through interviews and (ii) make proposals for addressing issues that will be recognized in the analysis;
 - (d) Agri-food / local supply chains: the group report will (i) model and analyze the distribution of values along the agri-food supply chain focusing on the economic success and the exporting dynamics of the agri-food sector on Lesvos and (ii) make proposals for addressing issues that will be recognized in the analysis.
 - (e) Farms and Agri-environmental Policies at the local and national levels: the group report will (i) describe existing policies that concern farms and farmers and rural development and (ii) make proposals that will incorporate suggestions from the rest of the groups into one or more policy options.

In the end of the fourth week the final presentation of the group reports will be completed. These will be presented on the final day of the course.

Each group will have a different coordinator from the staff of the University of the Aegean. Coordinators will work with the groups on meetings, while every Friday group meetings will take place to compare the work of the groups and discuss the issues raised and the progress towards a management plan.

The structure of the course in the four weeks it will take place will be as follows:

Day	Description of activities	What is expected from students	Comments
14-Jun-22	Introduction to the course Separation in groups Common lecture 1	To choose their group, all groups will have equal number of students (as much as possible) Attend the lecture	The selection process will be performed by students online after the introduction will be completed. In the case more students select the same team than the allocated number, the instructors will discuss with the students and help in moving students in groups
15-Jun-22	Common lectures day (two instructors, 2hr each instructor)	Attend the lectures	Each instructor will present (a) the context of the theme that the group will work on; (b) the group project content
16-Jun-22	Common lectures day (two instructors, 2hr each instructor)	Attend the lectures	Each instructor will present (a) the context of the theme that the group will work on; (b) the group project content
17-Jun-22	Common lectures day (one instructor, 2hr lecture) & 1st Inter-Group meeting	Attend the lecture Each group will have 5' to communicate to the other groups what kind of input / material will be required in the following weeks	The instructor will present (a) the context of the theme that the group will work on; (b) the group project content
18-Jun-22	Weekend		
19-Jun-22	Weekend		
20-Jun-22	1 st FIELD TRIP		
21-Jun-22	Group meetings	Each group will have meetings with their instructor to discuss	

Day	Description of activities	What is expected from students	Comments
		individual projects	
22-Jun-22	Group meetings	Each group will have meetings with their instructor to discuss individual projects	
23-Jun-22	2 nd FIELD TRIP		
24-Jun-22	2nd Inter-Group meeting & Individual assignment delivery	Each group will have 5' to communicate to the other groups a synthesis of the individual projects	After the deadline, all individual projects will be made public so that all groups will have access to the material
25-Jun-22	Weekend		
26-Jun-22	Weekend		
27-Jun-22	Common lecture	Attend the lecture	In this lecture the "debate" format will be presented and explained
28-Jun-22	Group meeting for debates Individual debate project delivery	The debate individual projects will be delivered by 19-00 (Greek time)	
29-Jun-22	Debate day	Students will present their "debate" arguments: one "for" and one against" for each theme, 5' each with extra 10' for discussion for each group	Due to the format (teleconferences) and lack of time, only two students per group will present. The selection will be random and performed in the day of the debates.
30-Jun-22	Group meetings	Each group will have meetings with their instructor to prepare for the 3rd Inter-Group meeting and discuss group projects	
01-Jul-22	3rd Inter-Group meeting	Each group will have 5' to communicate to the other groups a synthesis of their proposals for the group project	
02-Jul-22	Weekend		
03-Jul-22	Weekend		
04-Jul-22	Online Group meetings / group work	Each group will have meetings with their instructor (if necessary) to discuss group projects	
05-Jul-21	Online Group meetings / group work	Each group will have meetings with their instructor (if necessary) to discuss group projects	
06-Jul-21	Online Group meetings / group work	Each group will have meetings with their instructor (if necessary) to discuss group projects	
07-Jul-21	Online Group Presentations & Group project delivery	Groups will present their projects: 15' per group and 5' of questions	Groups can choose if the presentations will be performed by one person or more members of the groups
08-Jul-21	Farewell dinner or Virtual drinks!!!		

TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	<i>Face-to Face & e-learning</i>	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<i>Use of ICT in teaching, laboratory education, communication with students</i>	
TEACHING METHODS	Activity	Semester workload
	Lectures	12 hours
	Field Trips	15 hours
	Group and intergroup meetings	30 hours
	Individual Project	30 hours
	Group Project and Presentation	50 hours
	Debate preparation	<i>15 hours</i>
	Course total	<i>152 hours</i>
STUDENT PERFORMANCE EVALUATION	<ul style="list-style-type: none"> • individual project: 35%, given by the different coordinators of the groups for each group; • debate performance: 10%, given by the different coordinators of the groups for each group on the basis of the written report; • group project text: 50%, given by the different coordinators of the groups for each group after consultation with the rest of the coordinators; • group presentation: 5% given by the different coordinators of the groups for each group after consultation with the rest of the coordinators 	