

COURSE OUTLINE

1. GENERAL INFORMATION

FACULTY/SCHOOL	SCHOOL OF PLANT SCIENCES		
DEPARTMENT	Faculty of Crop Science		
LEVEL OF STUDY	Undergraduate		
COURSE UNIT CODE	156	Semester:	3^o
COURSE TITLE	ECOLOGY		
INDEPENDENT TEACHING ACTIVITIES <i>in case credits are awarded for separate components/parts of the course, e.g. in lectures, laboratory exercises, etc. If credits are awarded for the entire course, give the weekly teaching hours and the total credits</i>		WEEKLY TEACHING HOURS	ECTS
		4	4
<i>Add rows if necessary. The organization of teaching and the teaching methods used are described in detail under section 4</i>			
COURSE TYPE <i>Background knowledge, Scientific expertise, General Knowledge, Skills Development</i>	<i>Scientific expertise</i>		
PREREQUISITE COURSES:	None		
LANGUAGE OF INSTRUCTION:	Greek		
LANGUAGE OF EXAMINATION/ASSESSMENT :	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	https://oeclclass.aua.gr/eclass/courses/EFP105/		
COURSE WEBSITE (URL)	http://efp.aua.gr/el/mathima/176		

2. LEARNING OUTCOMES

Learning Outcomes
<i>The course learning outcomes, specific knowledge, skills and competences of an appropriate (certain) level, which students will acquire upon successful completion of the course, are described in detail. It is necessary to consult:</i>
Among the objectives of the course are for the students who successfully attend it to:
<ul style="list-style-type: none"> Understand the significance of Ecology as a Science and its role (contribution) in modern society. Learn the history and milestones of the Science of Ecology, as well as its basic "principles" and "laws" that govern it. Comprehend the fundamental concepts of Ecology (Population, Community, Ecosystem, Biosphere), as well as the structures and functioning of Ecosystems.

- Gain knowledge about the various Biomes of the planet and the adaptations of organisms to them.
- Understand the interactions between populations (competition, predation, parasitism, mimicry, etc.) and also familiarize themselves with basic models and life tables used to study population changes and interactions – as well as their significance and practical application.

APPENDIX A

- *Description of the level of learning outcomes for each level of study, in accordance with the European Higher Education Qualifications' Framework.*
- *Descriptive indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and*

APPENDIX B

- *Guidelines for writing Learning Outcomes*

General Competences

Taking into consideration the general competences that students/graduates must acquire (as those are described in the Diploma Supplement and are mentioned below), at which of the following does the course attendance aim?

Search for, analysis and synthesis of data and information by the use of appropriate technologies,
Adapting to new situations
Decision-making
Individual/Independent work
Group/Team work
Working in an international environment
Working in an interdisciplinary environment
Introduction of innovative research

Project planning and management
Respect for diversity and multiculturalism
Environmental awareness
Social, professional and ethical responsibility and sensitivity to gender issues
Critical thinking
Development of free, creative and inductive thinking
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(Other.....citizenship, spiritual freedom, social awareness, altruism etc.)
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The course aims to develop the following general skills:

- Respect for the natural environment.
- Planning and project management.
- Support in the decision-making process for the management of animal populations.
- Promote work in an international environment.
- Promote work in an interdisciplinary environment.
- Foster free, creative, and inductive thinking.

3. COURSE CONTENT

1. The science of ecology: Historical overview. Relationships with other sciences. Functional relationships of organisms with their abiotic environment (Temperature - Humidity - Light & Photoperiod). Adaptation strategies.
2. Organisms in Space. Species distribution. Theory of island biogeography and applications.
3. The concept of an ecosystem: Structure and functioning. Biogeochemical cycles - Matter recycling. Ecological footprint - Water footprint - Carbon footprint.
4. Ecological succession - types - significance. The concept of a community - Food webs.
5. The concept of a biome. Planetary biomes (Mediterranean, Desert, Tropical forest, Temperate-Deciduous forest, Coral reefs, etc.).
6. Biodiversity - basic concepts - significance.
7. Population Ecology - The concepts of individual-species-population - population density - crowding.
8. Dynamics of population fluctuations of a species in continuous and discrete time without density dependence: Exponential - Geometric model, Environmental and Demographic stochasticity.
9. Population fluctuations of a species with density dependence: Logistic, theta-logistic model. Allee effect.
10. r and K selection of species. Ecological and agricultural significance.
11. Life tables - Survival curves - Age pyramids. Population projections - Leslie Matrices, Lefkovich Matrices.
12. Metapopulations - introductory elements - concept and ecological significance.
13. Interactions between populations. Mutualism - Mimicry - Reciprocity. Ecological significance - Examples.
14. Interspecific competition - Niche. Basic models. Competitive exclusion. Significance of species competition in agriculture.
15. Predation & Parasitism - Functional response (types I, II, III). Ecological and agricultural significance - Basic models. Applications in agriculture.

4. TEACHING METHODS--ASSESSMENT

MODES OF DELIVERY

Face-to-face, in-class lecturing,
distance teaching and distance
learning etc.

In the amphitheater.

<p>USE OF INFORMATION AND COMMUNICATION TECHNOLOGY</p> <p><i>Use of ICT in teaching, Laboratory Education, Communication with students</i></p>	<p>Use of PowerPoint and video</p> <p>Communication with students through:</p> <ul style="list-style-type: none"> ✓ email, ✓ the e-class website, ✓ the Open class platform, and ✓ the announcements website of the Agricultural University of Athens: http://tdd.aua.gr/announcements/main 																		
<p>COURSE DESIGN</p> <p><i>Description of teaching techniques, practices and methods:</i></p> <p><i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, Internship, Art Workshop, Interactive teaching, Educational visits, projects, Essay writing, Artistic creativity, etc.</i></p> <p><i>The study hours for each learning activity as well as the hours of self-directed study are given following the principles of the ECTS.</i></p>	<table border="1"> <thead> <tr> <th>Activity/ Method</th><th>Semester workload</th></tr> </thead> <tbody> <tr> <td>Theory lectures</td><td>13 weeks</td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr> <td>Total number of teaching hours:</td><td>52 hours</td></tr> </tbody> </table>	Activity/ Method	Semester workload	Theory lectures	13 weeks													Total number of teaching hours:	52 hours
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<p align="center">STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS</p> <p><i>Detailed description of the evaluation procedures:</i></p> <p><i>Language of evaluation, assessment methods, formative or summative (conclusive), multiple choice tests, short- answer questions, open-ended questions, problem solving, written work, essay/report, oral exam, presentation, laboratory work, other.....etc.</i></p> <p><i>Specifically defined evaluation criteria are stated, as well as if and where they are accessible by the students.</i></p>	<p>I. The evaluation language is Greek.</p> <p>II. The grade in the theory is determined either 100% by the final written exam or 20% by the progress grade (if applicable) and 80% by the final written exam.</p> <p>III. Exams may consist of either short essay questions, multiple-choice questions, or a combination of both (i.e., multiple-choice questions + problem solving or essay question).</p> <p>IV. Oral examination is offered to those who prefer this method of examination for whatever reason (e.g., for health problems or any other reasons).</p>
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5. SUGGESTED BIBLIOGRAPHY:

<ul style="list-style-type: none"> Recommended Bibliography: University Textbooks: "Οικολογία" (D. Veresoglou)
<p>University Lecture Notes:</p> <ul style="list-style-type: none"> "Στοιχεία Οικολογίας" - M.G. Karandeinos "Σημειώσεις Οικολογίας" - A. Fantinou A.N. Riga-Karandeinos Recommended Foreign Language Textbooks: Ricklefs R.E. and Miller G.L. 2000. ECOLOGY. (4th ed). W.H. Freeman and Company. New York. Rockwood L.L. 2006. INTRODUCTION TO POPULATION ECOLOGY. Wiley-Blackwell. ISBN 1405132639, 9781405132633. Related Scientific Journals: Journal of Ecology Journal of Animal Ecology Oikos

6. TEACHERS:

Professor Costas SAITANIS
