

Ecology [156]

COURSE OUTLINE

(1) GENERAL

SCHOOL	ANIMAL BIOSCIENCES		
ACADEMIC UNIT	DEPARTMENT OF ANIMAL SCIENCE		
LEVEL OF STUDIES	Undergraduate [Required]		
COURSE CODE	156	SEMESTER	5th
COURSE TITLE	ECOLOGY		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>		WEEKLY TEACHING HOURS	CREDITS (ECTS)
Lectures		4	4
Total		4	4
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Scientific Area		
PREREQUISITE COURSES:	-		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS:	No		
COURSE WEBSITE (URL):	https://oeclasse.aua.gr/eclass/courses/EFP105/ http://efp.aua.gr/el/mathima/176		

(2) LEARNING OUTCOMES

Learning outcomes	
The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described. Consult Appendix A - Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area - Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B - Guidelines for writing Learning Outcomes	
Among the objectives of the course are for the students who successfully attend it to: - 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 familiarize themselves with basic models and life tables used to study population changes and interactions – as well as their significance and practical application.	
General Competences	
Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?	
Search for, analysis and synthesis of data and information, with the use of the necessary technology Adapting to new situations Decision-making Working independently Team work Working in an international environment Working in an interdisciplinary environment Production of new research ideas	Project planning and management Respect for difference and multiculturalism Respect for the natural environment Showing social, professional and ethical responsibility and sensitivity to gender issues Criticism and self-criticism Production of free, creative and inductive thinking Others...

- 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) SYLLABUS

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, TemperateDeciduous forest, Coral reefs, etc.).
6. Biodiversity - basic concepts - significance. Species diversity – Diversity indices.
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, Lefkovitch 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 and LEARNING METHODS - EVALUATION

TEACHING METHOD <i>Face-to-face, Distance learning, etc.</i>	• In class	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of PowerPoint and video Communication with students through: • email, • the e-class website, • the Open class platform, and • the announcements website of the Agricultural University of Athens	
TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i> <i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	Activity	Semester workload
	Lectures	52
	Study hours & Self- directed study	48
	Course total (25 h of workload per ECTS)	100
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i> <i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation,</i>	I. The evaluation language is Greek. 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. 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 questions). 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).	

laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.

(5) ATTACHED BIBLIOGRAPHY

Recommended Bibliography: University Textbooks:

- "Οικολογία" (By D. Veresoglou) (In Greek)
- "Ecology, Concepts and Applications (By M.C. Molles and A.A. Sher) (In English)

University Lecture Notes:

"Ecology Notes" – C. Saitanis (in Greek) ("Σημειώσεις Οικολογίας")

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