

ECOLOGY

1. GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
ACADEMIC UNIT	AGRICULTURE		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	AGR_1010	SEMESTER OF STUDIES	10 th
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
	Lectures	3	
	Seminars	1	
	Total	4	5
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	general background, specialised general knowledge		
PREREQUISITE COURSES:	There are no prerequisite courses.		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	-		
COURSE WEBPAGE (URL)			

2. LEARNING OUTCOMES

<p>Learning outcomes <i>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.</i> <i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i> 												
<p>Within the course students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the importance of Ecology as a Science and its role in modern society. 2. Familiarize with the history, milestones and core principles of Ecology Science. 3. Understand the basic concepts of Ecology as well as the structure and functions of Ecosystems. 4. Get to know the planet's Biosystems and organism adaptations 5. Understand population interactions (competition, predation, parasitism, mimicry etc) 												
<p>General Competences <i>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?</i></p> <table> <tr> <td><i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i></td> <td><i>Project planning and management</i></td> </tr> <tr> <td><i>Adapting to new situations</i></td> <td><i>Respect for difference and multiculturalism</i></td> </tr> <tr> <td><i>Decision-making</i></td> <td><i>Respect for the natural environment</i></td> </tr> <tr> <td><i>Working independently</i></td> <td><i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i></td> </tr> <tr> <td><i>Teamwork</i></td> <td><i>Criticism and self-criticism</i></td> </tr> <tr> <td></td> <td><i>Production of free, creative and inductive thinking</i></td> </tr> </table>	<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>	<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>	<i>Decision-making</i>	<i>Respect for the natural environment</i>	<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>	<i>Teamwork</i>	<i>Criticism and self-criticism</i>		<i>Production of free, creative and inductive thinking</i>
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	<i>Production of free, creative and inductive thinking</i>											

<i>Working in an international environment</i>
<i>Working in an interdisciplinary environment</i>	<i>Others...</i>
<i>Production of new research ideas</i>

Upon completion of this course, the student will develop the following general competencies (from the list above):

- Respect for the natural environment
- Project planning and management
- decision-making regarding animal population management
- Work in an International Environment
- Work in an Interdisciplinary Environment
- Free, creative and inductive thinking

3. SYLLABUS

<ol style="list-style-type: none"> 1. Introduction. Modern environmental problems. Vegetation Ecology. Vegetation units, Habitats and plant communities 2. The Science of Ecology: Historical Review. Relationships with other sciences. Functional relationships of organizations with their abiotic environment (Temperature-Humidity-Light & Photoperiodism). Adaptation Strategies. Basic Quantitative Analysis of Ecological Disorders 3. The concept of the ecosystem: Structure and function. Biogeochemical Circles - Recycling of matter. Ecological footprint - Water footprint - Carbon footprint 4. Communities and Ecosystems. Abundance and Diversity of Goods. Diversity Indicators. Environmental complexity. Disturbance and Diversity. Biodiversity 5. Characteristics of ecosystems, of bio-communities and biodiversity 6. Ecological succession - types- importance. The concept of bio-community-food networks. 7. The concept of the biosystem. Planetary Biosystems (Mediterranean, Desert, Tropical Forest, Eurasian-deciduous forest, coral reefs, etc.). 8. The limits of nature and biodiversity conservation: NIMBY (Not In My Backyard) 9. Population Ecology - The concept of population and their role in the ecosystem. The concepts of person-species-population-population density-crowding. Hr and K selection of species. Ecological and Agricultural importance 10. Interaction of populations. Allelopathy - Mimicry- Reciprocity. Ecological significance-Patterns. 11. Structure and functioning of agro-ecosystems. Time tracking. Use of plants as indicators of environmental conditions. 12. Predation & Parasitism - Models of dynamic populations (accounting model of growth, predation and competition). Ecological and agricultural importance - Basic models. Applications in agriculture 13. Management of harmful organisms.
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4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face lectures and seminars.	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of ICT (powerpoint) in teaching, Workshops for model analysis.	
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-</i>	Activity	Semester workload
	Lectures (3 contact hours per week x 13 weeks)	39
	Seminars (1 contact hour per week x 13 weeks) with personal reports	13
	Final examination (3 contact hours)	3
	Individual - group work / projects, Study hours, project writing and preparation for final exams	70
	Course total	125 hours total workload

<i>directed study according to the principles of the ECTS</i>	
<p>STUDENT PERFORMANCE EVALUATION</p> <p><i>Description of the evaluation procedure</i></p> <p><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, laboratory work, clinical examination of patient, art interpretation, other.</i></p> <p><i>Specifically, defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<ol style="list-style-type: none"> 1. Course attendance - Participation in the classroom 2. Projects that require information synthesis and critical thinking by the student, 30% weightiness in the final overall grade. 3. Written final examination of all material including subjects requiring lengthy answers. Minimum passing grade: 5. 4. All the above are taking place in Greek.

5. ATTACHED BIBLIOGRAPHY

<ol style="list-style-type: none"> 1. Molles Manuel C. Jr. Ecology. 2002. McGraw Hill 2. Michael Begon, Robert W. Howarth, Colin R. Townsend. 2014. Essentials of Ecology. Wiley Publishers. 3. Οικολογία Φυτών. ΠΑΝΑΓΙΩΤΗΣ ΔΗΜΟΠΟΥΛΟΣ - ΜΑΡΙΑ ΠΑΝΙΤΣΑ. ΑΦΟΙ ΤΕΡΖΗ, 2009. ISBN: 978-960-9407-01-4. 4. Οικολογία . Βερεσόγλου Δ. ΓΑΡΤΑΓΑΝΗΣ ΑΓΙΣ-ΣΑΒΒΑΣ. 200 ISBN: 978-960-7013-36-19
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