

COURSE OUTLINE

(1) GENERAL

SCHOOL	NATURAL SCIENCES		
ACADEMIC UNIT	BIOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	BIO_ZY03	SEMESTER	7
COURSE TITLE	ECOLOGY II		
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, seminars, and Multimedia displays	3	6	
Laboratory work & exercises	2		
Educational field-work	1 or 2 daily excursions		
<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>	Field of Science		
PREREQUISITE COURSES:	Typically, there are not prerequisite course. Essentially, the students should possess: (a) knowledge provided through the previously taught theoretical courses "Plant Biology", "Zoology" and "Science of general Biology", and (b) laboratory skills obtained through the previously attended laboratory courses.		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek. Teaching may be however performed in English in case foreign Erasmus students attend the course.		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBSITE (URL)	Σφάλμα! Η αναφορά της υπερ-σύνδεσης δεν είναι έγκυρη. eclass.upatras.gr/courses/bio232		

(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*

By the end of this course the student will be able to:

1. Understand the basic principles and processes of Ecology
2. Gain fundamental principles of the structure and function of ecosystems
3. Apply the ecological principles in environmental assessment and management of environmental issues
4. Evaluate the biodiversity conservation as well as the climate change results in ecosystems and natural environment
5. Strengthen their efficiency to compile information in a coherent system/unit

At the end of this course the student will have further developed the following skills/competences:

1. Ability to demonstrate knowledge and understanding of essential facts, concepts, principles and theories of Ecology
2. Ability to apply such knowledge and understanding to the solution of ecological issues
3. Ability to interact with others on environmental multidisciplinary problems
4. Study skills needed for continuing professional development

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?

<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>Team work</i>	<i>Criticism and self-criticism</i>
<i>Working in an international environment</i>	<i>Production of free, creative and inductive thinking</i>
<i>Working in an interdisciplinary environment</i>	<i>.....</i>
<i>Production of new research ideas</i>	<i>Others...</i>
	<i>.....</i>

Generally, by the end of this course the student will, furthermore, have develop the following general abilities (from the list above):

- Adaptation to new situations*
- Decision making*
- Autonomous (Independent) work*
- Group work*
- Exercise of criticism and self-criticism*
- Promotion of free, creative and inductive thinking*
- Respect to natural environment*
- Work design and management*

(3) SYLLABUS

What is Ecology? Tools and Methods of Ecological research.

Communities and Ecosystems. Species Abundance and Diversity. Quantitative index of Diversity. Environmental Complexity.

Disturbance and Diversity.

Food webs structure and species Diversity.

Primary Production and Energy Flow

Models of Primary Production

Trophic Levels

Nutrient Cycling and Retention. Biogeochemical cycles

Decomposition in terrestrial and aquatic Ecosystems

Succession and Stability. Primary and Secondary Succession.

Community and Ecosystem changes during succession.

Landscape Ecology.

Geographical Information Systems.

Global Ecology

Methodology and Implementation of the teaching and pedagogical approach in Ecology.

(4) TEACHING and LEARNING METHODS - EVALUATION

<p>DELIVERY <i>Face-to-face, Distance learning, etc.</i></p>	Lectures, seminars and laboratory work face to face.	
<p>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i></p>	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teaching. The lectures content of the course for each chapter are uploaded on the internet, in the form of a series of ppt files, where from the students can freely download them.	
<p>TEACHING METHODS <i>The manner and methods of teaching are described in detail. 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></p> <p><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></p>	<p style="text-align: center;">Activity</p>	<p style="text-align: center;">Semester workload</p>
	Lectures (3 conduct hours per week x 13 weeks)	39
	Field work	16
	Laboratory exercises/ work (2 conduct hours per week x 13 weeks)	26
	Optionally, preparation of home-works from groups of two or three students each.	24
	Hours for private study of the student and preparation of home-works and reports, for the Laboratory, and preparation for the Laboratory (study of techniques and theory)	45
Course total	150 hours (total student work-load)	
<p>STUDENT PERFORMANCE EVALUATION <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>	Written examination at the end of semester	

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

Molles MC 2009. Οικολογία (Μετάφραση: Θ. Γεωργιάδη). Εκδόσεις Μεταίχμιο

[Molles MC 2008. *Ecology*. 4rd edition. Mc Graw Hill.]

Begon M, Harper J & Townsend C **2015**. Οικολογία Πληθυσμοί, Βιοκοινότητες και Εφαρμογές [*Ecology: Individuals, Populations and Communities*. 4th Edit., Blackwell] 1^η Ελληνική Έκδοση Utopia .

Begon M, Harper J & Townsend C **1996**. *Ecology: Individuals, Populations and Communities*. 3rd Edit., Blackwell.

EMBERLIN JC **2006**. *ΕΙΣΑΓΩΓΗ ΣΤΗΝ ΟΙΚΟΛΟΓΙΑ*. ΕΚΔΟΣΕΙΣ ΤΥΠΩΘΗΤΩ (ΜΕΤΑΦΡ.: ΜΕΛΙΪΔΟΥ Α.)

Krebs CJ **1994**. *Ecology: the experimental analysis of distribution and abundance*. Harper & Row, New York.

ODUM E **1993**. *ECOLOGY AND OUR ENDANGERED LIFE-SUPPORT SYSTEMS (USA)*

ODUM E **1971**. *FUNDAMENTALS OF ECOLOGY*. SAUNDERS, PHILADELPHIA.

- Related academic journals:

Notes of lecturers in Greek [ΗΛΕΚΤΡΟΝΙΚΑ ΜΑΘΗΜΑΤΑ ΟΙΚΟΛΟΓΙΑ II] – (BIO232, eclass.upatras.gr)