

COURSE OUTLINE

1. GENERAL^{1st}

SCHOOL	Engineering		
DEPARTMENT	Environmental Engineering		
LEVEL OF STUDIES	Undergraduate, First cycle, General Education		
COURSE CODE	15AY2N	SEMESTER	1 st
COURSE TITLE	BIOLOGY-ECOLOGY		
TEACHING ACTIVITIES <i>If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.</i>		TEACHING HOURS PER WEEK	ECTS CREDITS
		4	5
<i>Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.</i>			
COURSE TYPE <i>Background, General Knowledge, Scientific Area, Skill Development</i>	General knowledge (Compulsory)		
PREREQUISITES:	-		
TEACHING & EXAMINATION LANGUAGE:	Greek		
COURSE OFFERED TO ERASMUS STUDENTS:	No		
COURSE URL:			

2. LEARNING OUTCOMES

Learning Outcomes <i>Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.</i>	
Knowledge based: • Knowledge of the structure and role of biomolecules. • Understanding of cellular structure and function. • Understanding of genetic diversity. • Understanding of asexual and sexual reproduction. • Understanding of factors that influence ecosystems. • Being familiar with the characteristics of the major natural ecosystems.	
General Skills <i>Name the desirable general skills upon successful completion of the module</i>	
<i>Search, analysis and synthesis of data and information, ICT Use Adaptation to new situations Decision making Autonomous work Teamwork Working in an international environment Working in an interdisciplinary environment Production of new research ideas</i>	<i>Project design and management Equity and Inclusion Respect for the natural environment Sustainability Demonstration of social, professional and moral responsibility and sensitivity to gender issues Critical thinking Promoting free, creative and inductive reasoning</i>
• Search, analysis and synthesis of data and information • Autonomous work • Production of new research ideas • Equity and Inclusion • Respect for the natural environment	

- Sustainability
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Critical thinking
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

Inheritance and diversity. Cellular evolution. Chemical composition of living organisms - biomolecules. The role of water in biological systems. Enzymes as biocatalysts. Structure and composition of biological membranes. Transmembrane transport. Cell signaling. Prokaryote and eukaryote cell structure. Mitosis and meiosis. Cellular death. Genetic diversity. Prokaryotic genome. DNA replication, transcription and translation. Mutagenesis. Mendel's genetic laws. Genetic mapping. Recombinant DNA and cloning. Hosts and vectors.

Ecosystems and characteristics. Recycling nutrients. Ecosystem productivity. Ecological succession. Effects of environmental factors on ecosystems. Population ecology. Diversity and survival strategies. Biomarkers. Species migration and deployment. Evolutionary relationships. Natural ecosystems and anthropogenic activities.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD <i>Face to face, Distance learning, etc.</i>	Face-to-face teaching of the course contents using slides presentation. Use of the e-learning platform “e-class”.	
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) <i>Use of ICT in Teaching, in Laboratory Education, in Communication with students</i>	Use of ICT in Teaching and in Communication with students	
TEACHING ORGANIZATION <i>The ways and methods of teaching are described in detail.</i> <i>Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.</i> <i>The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</i>	Activity	Workload/semester
	Lectures	52
	Bibliographic research & analysis	98
STUDENT EVALUATION <i>Description of the evaluation process</i> <i>Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others</i> <i>Please indicate all relevant information about the course assessment and how students are informed</i>	Written examination	

5. SUGGESTED BIBLIOGRAPHY

- Biology, Alexandri-Chatziantoniou E., Stamoulis Publications, ISBN: 960-351-547-7 (In Greek).
- Introduction to Ecology, Emberlin J. C., Tipothito publications, ISBN: 978-960-7643-20-8 (In Greek).

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	Associate Professor Spyridon Ntougias	
Contact details:	Vas. Sofias 12, 67132; tel: +30 2541079313; sntougia@env.duth.gr	
Supervisors: (1)	Yes	
Evaluation methods: (2)	Oral examination and essay evaluation	
Implementation Instructions: (3)	Oral examination will be carried out with distance learning methods in groups of 10 people, answering two questions via MS TEAMS, overseen by invigilators to ensure the inviolability and reliability of the exam. Regarding grading system, the two oral questions will account for 5/10 each. The technical means for the implementation of the examination include microphone, camera, internet connection and communication platform. The hyperlink for the examination will be provided via e-class.	

(1) Please write YES or NO

(2) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(3) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises**: the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and **any other necessary information**.

b) in case of **oral examination with distance learning methods**: the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.