

COURSE OUTLINE

(1) General information

FACULTY/SCHOOL	TECHNOLOGY		
DEPARTMENT	ENVIRONMENTAL SCIENCES		
LEVEL OF STUDY	<i>Undergraduate</i>		
COURSE UNIT CODE	NEW COURSE	SEMESTER	7
COURSE TITLE	ECOTOXICOLOGY		
INDEPENDENT TEACHING ACTIVITIES 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		WEEKLY TEACHING HOURS	CREDITS
THEORETICAL BACKGROUND		3	3
LABORATORY PRACTICE		2	3
TOTAL		5	6
COURSE TYPE Background knowledge, Scientific expertise, General Knowledge, Skills Development	Scientific Expertise		
PREREQUISITE COURSES:	ECOLOGY, BIOLOGY		
LANGUAGE OF INSTRUCTION & EXAMINATION/ASSESSMENT:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	-		

(2) LEARNING OUTCOMES

<p>Learning Outcomes 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:</p> <p>APPENDIX A</p> <ul style="list-style-type: none"> • 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 <p>APPENDIX B</p> <ul style="list-style-type: none"> • Guidelines for writing Learning Outcomes
<p>Upon completion of the course the students are expected to</p> <ul style="list-style-type: none"> • Acquire good understanding of the fundamentals of environmental toxicology and environmental pollution • Acquire skills on the measurement of the toxicity of environmental pollutants • Acquire knowledge on the basic methodologies for the evaluation of the toxicity in environmental matrices

- *Become capable of coping with ecotoxicological problems and propose appropriate solutions*
- *Get basic understanding and skills of environmental risk assessment using data coming from field and laboratory measurements*

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?

<i>Search for, analysis and synthesis of data and information by the use of appropriate technologies, Adapting to new situations</i>	<i>Project planning and management</i>
<i>Decision-making</i>	<i>Respect for diversity and multiculturalism</i>
<i>Individual/Independent work</i>	<i>Environmental awareness</i>
<i>Group/Team work</i>	<i>Social, professional and ethical responsibility and sensitivity to gender issues</i>
<i>Working in an international environment</i>	<i>Critical thinking</i>
<i>Working in an interdisciplinary environment</i>	<i>Development of free, creative and inductive thinking</i>
<i>Introduction of innovative research</i>	<i>.....</i>
	<i>(Other.....citizenship, spiritual freedom, social awareness, altruism etc.)</i>
	<i>.....</i>

The teaching methods followed and the course content encourage:

- 1) The search, analysis and composing of information with the use of relevant technologies
- 2) Adaptation to new and changing situations
- 3) Decision making upon critical evaluation of data and information available
- 4) Group working
- 5) Individual working
- 6) Working in an international and multidisciplinary environment
- 7) Production of novel research ideas
- 8) Planning and management of constructions
- 9) Respect to environment and strengthening of environmental awareness
- 10) liberal, constructive and inductive thinking

(3) COURSE CONTENT

1. Introduction to Ecotoxicology – Basic terms and principles
2. Acute and Chronic Toxicity – Definitions of terms and toxicological parameters
3. Environmental pollutants – Transportation and processes which determine the environmental fate and partition of pollutants in environmental compartments
4. Main pollutants of soil, water, and atmosphere – Exposure assessment
5. Relation between dose – reaction in Ecotoxicology
6. Bioaccumulation and Biomagnification
7. Toxicity tests and results evaluation in ecotoxicology (single species tests, species sensitivity distributions, principal response curves)

<p>8. Bioindicators</p> <p>9. Risk assessment</p> <p>10. Assessment of the ecotoxicity of pesticides – An example of a well-developed regulatory framework</p> <p>Laboratory practicals</p> <ul style="list-style-type: none"> • Toxicity test Microtox • Toxicity tests with the use of Daphnia magna • Toxicity tests with pesticides and soil microorganisms • Estimating risk for pesticides 	
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(4) TEACHING METHODS-ASSESSMENT

<p>MODES OF DELIVERY Face-to-face, in-class lecturing, distance teaching and distance learning etc.</p>	In-class lecturing, face to face	
<p>USE OF INFORMATION AND COMMUNICATION TECHNOLOGY Use of ICT in teaching, Laboratory Education, Communication with students</p>	<p>Use of power point presentations</p> <p>Email communication with students</p> <p>Upload of literature, examination papers and teaching material through e-class</p>	
<p>COURSE DESIGN Description of teaching techniques, practices and methods: Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, Internship, Art Workshop, Interactive teaching, Educational visits, projects, Essay writing, Artistic creativity, etc.</p> <p>The study hours for each learning activity as well as the hours of self-directed study are given following the principles of the ECTS.</p>	<p>Activity/Method</p>	<p>Semester workload</p>
	Lectures	39
	Theory study	55
	Laboratory practicals	26
	Essay writing and presentation	30
	<p>Course total (25 hours of workload per credit unit)</p>	<p>150</p>
<p>STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS Detailed description of the evaluation procedures:</p> <p>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.</p> <p>Specifically, defined evaluation</p>	<p>Students performance evaluation</p> <ul style="list-style-type: none"> • Through written exams at the end of the semester 80% of the final grade • Presentation of a case study by groups of students 20% of final grade 	

criteria are stated, as well as if and where they are accessible by the students.	
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(5) SUGGESTED BIBLIOGRAPHY:

-Suggested bibliography

- Valavanidis A, 2007. «Ecotoxicology and Environmental Toxicity – Research Methodology for the assessment of the ecological risk from hazardous chemicals»
- Walker, Hopkin, Sibly & Peakall (2012), Principles of ecotoxicology. 4th edition. CRC Press.

-Complementary bibliography

Lecture notes: presentations of the lectures and of laboratory practicals are available in the e-class platform for all students to download