

COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Environment		
ACADEMIC UNIT	Department of Environment		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	224KEY	SEMESTER	6
COURSE TITLE	Aquatic Pollution		
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	
Total		3	6
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Specialised general knowledge		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	https://www.env.aegean.gr/all_courses/aquatic-pollution/		

(2) LEARNING OUTCOMES

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> <ul style="list-style-type: none"> • 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 															
<ul style="list-style-type: none"> • To familiarize students with the key concepts of water pollution • To provide an understanding of the sources, transport and fate of the major pollutant groups in aquatic systems 															
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> <table> <tr> <td>Search for, analysis and synthesis of data and information, with the use of the necessary technology</td><td>Project planning and management</td></tr> <tr> <td>Adapting to new situations</td><td>Respect for difference and multiculturalism</td></tr> <tr> <td>Decision-making</td><td>Respect for the natural environment</td></tr> <tr> <td>Working independently</td><td>Showing social, professional and ethical responsibility and sensitivity to gender issues</td></tr> <tr> <td>Team work</td><td>Criticism and self-criticism</td></tr> <tr> <td>Working in an international environment</td><td>Production of free, creative and inductive thinking</td></tr> <tr> <td>Working in an interdisciplinary environment</td><td>.....</td></tr> </table>		Search for, analysis and synthesis of data and information, with the use of the necessary technology	Project planning and management	Adapting to new situations	Respect for difference and multiculturalism	Decision-making	Respect for the natural environment	Working independently	Showing social, professional and ethical responsibility and sensitivity to gender issues	Team work	Criticism and self-criticism	Working in an international environment	Production of free, creative and inductive thinking	Working in an interdisciplinary environment
Search for, analysis and synthesis of data and information, with the use of the necessary technology	Project planning and management														
Adapting to new situations	Respect for difference and multiculturalism														
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Working independently	Showing social, professional and ethical responsibility and sensitivity to gender issues														
Team work	Criticism and self-criticism														
Working in an international environment	Production of free, creative and inductive thinking														
Working in an interdisciplinary environment														

<i>Production of new research ideas</i>	<i>Others...</i>
<ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information, with the use of the necessary technology • Working independently • Working in an interdisciplinary environment • Respect for the natural environment 	

(3) SYLLABUS

<ul style="list-style-type: none"> • The Hydrosphere: physicochemical characteristics of the water and the aquatic ecosystems • Biodegradable organic matter – oxygen consuming effluents. • Microbiological pollution • Nutrients and eutrophication • Trace metals and metalloids • Petroleum hydrocarbons • Polycyclic Aromatic Hydrocarbons • Persistent Organic Pollutants: Pesticides, Polychlorinated Biphenyls, polyhalogenated compounds, polychlorinated dibenzodioxins and dibenzofurans • Emerging contaminants – endocrine disruptors, pharmaceuticals • Marine litter, plastics/microplastics • Radioactivity • Ocean acidification

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>		
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	39
	Study and analysis of bibliography	120
	Total	159
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, laboratory work, clinical</i>	Language of evaluation: Greek <ul style="list-style-type: none"> • Assignment – power point presentation (30%) • Final examination (70%) 	

examination of patient, art interpretation, other	
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Specifically-defined evaluation criteria are given,
and if and where they are accessible to students.

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

- Χημεία Περιβάλλοντος: Μια παγκόσμια θεώρηση, 2022. vanLoon W. Gary, Duffy J. Stephen, Επιμ. Χρυσή Καραπαναγιώτη, University Studio Press
- Χημεία Περιβάλλοντος, 2021. Baird Colin, Cann Michael, Επιμ. Μάνος Ι. Δασενάκης, Broken Hill Publishers Ltd
- Η Χημεία του περιβάλλοντος με μία ματιά, 2008. Ian Pulford and Hugh Flowers, Επιμ. Κωνσταντίνη Σαμαρά-Κωνσταντίνου, Άννα Κασώλη-Φουρναράκη Επιστημονικές εκδόσεις Παρισιάνου Α.Ε.
- Φυτιάνος Κ., 1996. Η ρύπανση των θαλασσών. (Β' έκδοση), UNIVERSITY STUDIO PRESS
- Αλμπάνης Τ., 2009. Ρύπανση και τεχνολογίες προστασίας περιβάλλοντος. Εκδόσεις Τζιόλα, Θεσσαλονίκη

- Web sites:

- <http://www.unep.org>
- <http://www.msfd.eu>
- <http://www.wfd.eu>
- <http://www.explainthatstuff.com/waterpollution.html>
- <http://oceanservice.noaa.gov/facts/pollution.html>
- <https://www.plasticoceans.org>
- www.greenpeace.org
- <https://www.iucn.org>