COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Environment		
ACADEMIC UNIT	Department of Environment		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	201Y	SEMESTER	1
COURSE TITLE	Chemistry		

INDEPENDENT TEACHING ACTIVITIES *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*	WEEKLY TEACHING HOURS	CREDITS
Lectures	3	
Laboratory exercises	3	
Total	6	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	General background
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/chemistry/

(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*

Upon successful completion of the course the student should be able to:

- understand and use significant figures and convert units in calculations of chemical quantities
- understand the basic properties of atoms, molecules and states of matter
- understands the atomic structure and periodicity of the elements in the Periodic Table
- recognize the names and chemical formulas of binary molecular and ionic compounds and acids
- balance chemical equations and understand stoichiometric relationships in chemical equations
- use the concept of mole in quantitative chemical calculations
- recognize the basic types of chemical reactions and predict their outcome
- understand the laws that determine the physical/chemical behavior of gases
- understand the theory of chemical bonds and determine molecular geometry
- calculate the speed of a reaction and understand the mechanisms of chemical reactions

- understand the concept of chemical equilibrium and apply Le Chatelier's principle to predict changes in the position of chemical equilibrium

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?

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	*……*
Production of new research ideas	*Others…*
	…….

The course aims to develop general skills from the graduates regarding:

- Working independently
- Working in an interdisciplinary environment
- Respect for the natural environment
- Production of free, creative and inductive thinking

(3) SYLLABUS

- Introduction to Chemistry & Chemical tools: Experimentation and measurement
- Atoms, molecules, ions
- Mass relations in chemical reactions
- Reactions in aqueous solution
- Periodicity and electronic structure of atoms
- Ionic compounds: Periodic trends and bond theory
- Covalent bonding and Lewis structures
- Covalent compounds: Theories of chemical bonding and molecular structure
- Gases: Their properties and behavior
- Chemical Kinetics
- Chemical Equilibrium

(4) TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
Face-to-face, Distance learning, etc.</td><td>Face-to-face</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students</td><td>Moodle learning platform</td></tr>
<tr><td>TEACHING METHODS
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.

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</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>13weeks x 3 h/week = 39 h</td></tr>
<tr><td>Tutorials</td><td>13weeks x 3 h/week = 39 h</td></tr>
<tr><td>Study & weekly self-assessment quiz</td><td>13weeks x 5 h/week = 65 h</td></tr>
<tr><td>Total</td><td>143 h</td></tr>
</table>
</td></tr>
<tr><td>STUDENT PERFORMANCE EVALUATION
Description of the evaluation procedure

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

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</td><td>Language of evaluation: Greek

Ten (10) weekly self-assessment tests via the Moodle platform, during the semester

Mid-term exam via the Moodle platform with Multiple Choice, Short-Answer questions and Problem Solving, 40%

Final exam via the Moodle platform with Multiple Choice, Short-Answer questions and Problem Solving, 60%

The criteria are listed on the course page in Moodle</td></tr>
</table>

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

- Robinson Jill K., McMurry John E., Fay Robert C. (2022). Γενική χημεία, 1η έκδ. Εκδόσεις Κριτική
  Chang R., Overby J. (2021) Γενική χημεία, 1η έκδ., Εκδόσεις ΠΑΠΑΖΗΣΗ
- Brown T., LeMay E., Burste B., Murphy C., Woodward P., Stoltzfus M. (2015). Γενική Χημεία, 13η Έκδοση, Εκδόσεις Α. ΤΖΙΟΛΑ & ΥΙΟΙ Α.Ε.

- Related academic journals:

- Chemical Chronicles (in Greek)