



**GENERAL & INORGANIC
CHEMISTRY**

GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
DEPARTMENT	FOOD SCIENCE & NUTRITION		
PROGRAMME	UNDERGRADUATE		
COURSE CODE	ΒΠ111	SEMESTER	A
COURSE	GENERAL & INORGANIC CHEMISTRY RESPONSIBLE: D. MAKRIS		
TEACHING ACTIVITIES		TEACHING HOURS PER WEEK	CREDIT UNITS
		LECTURES	3
		LABORATORY	3
			5
COURSE TYPE	SCIENTIFIC AREA/SPECIFIC BACKGROUND/ SKILL DEVELOPMENT		
PREREQUISITES:	NO		
TEACHING AND EXAM LANGUAGE:	GREEK		
COURSE OFFERED TO ERASMUS STUDENTS	NO		
COURSE SITE (URL)			

LEARNING OUTCOME

Learning outcome

The objective of the course is the understanding of basic concepts pertaining to chemical theory related with the fundamental structure of matter, its properties and how these properties may affect the physical-chemical behaviour of matter. Furthermore, the scope of the course is the comprehension of the nature and mechanisms of chemical reactions and the relevant thermodynamic and kinetic phenomena. Laboratory exercises intent to accustom students with basic laboratory practices and train them to fundamental calculations related with chemical reaction handling, as well as quantitative calculations.

Upon successful completion of the course, students will be able to:

- *Understand the basic principles of general and inorganic chemistry and its applications.*
- *Have knowledge for basic notions, principles and theory related with chemical analysis and data processing.*
- *Understand and evaluate methods of general and inorganic chemistry.*
- *Properly and safely use laboratory devices and equipment.*
- *Comprehend the impact of data processing on the reliability of the results.*
- *Understand the implementation of methods of inorganic analysis.*

General skills



Upon completion of the course, the students will acquire the following skills:

- Critical thinking and the link between theory and practical applications
- Search, analysis and combination of data and information with the use of cutting edge technologies
- Decision making
- Self-sufficient working
- Team working
- Advancement of free, creative and inferential thinking
- Development of connotative and divergent thinking

Syllabus

1st week: Elements and their properties
 2nd week: Equations – moles - stoichiometry
 3rd week: Reactions in aqueous solutions
 4th week: Periodicity and atomic structure
 5th week: Ionic bonds – Chemistry of principal groups
 6th week: Covalent bonds and molecular structure
 7th week: Thermochemistry – Chemical energy
 8th week: Gases – Properties and behaviour
 9th week: Liquids, solids and phase transition
 10th week: Solutions and their properties
 11th week: Chemical kinetics
 12th week: Chemical equilibrium
 13th week: Aqueous equilibrium – Acids and bases. Applications of aqueous equilibrium

Laboratory course: 1. Introduction 2. Laboratory safety – Good laboratory practice 3. Solution preparation 4. Acid – base titrations/stoichiometry/applications 5. Back titration – mass determination 6. Buffer solutions 7. Overview - summary

TEACHING AND LEARNING METHODS - EVALUATION

TEACHING MODE	On campus. In laboratory courses, following a short demonstration by the teaching staff, students carry out the experiment. Furthermore, students get accustomed to writing of scientific reports, in which the experimental data are appropriately given and discussed.		
USE OF COMPUTER SERVICES	Lectures are delivered by power point presentations and other audio media		
TEACHING ORGANISATION	Activity	Semester workload	
	Lecture course	39	
	Laboratory course	39	
	Study	47	
	Sum	125	
STUDENT EVALUATION	The language of evaluation is Greek. The final grade is 50% the grade of the lecture course and 50% of the laboratory course. The exams of the lecture course include multiple choice questions. The exams of the laboratory course include exercises (50%) and reports (50%).		

RECOMMENDED BIBLIOGRAPHY

- Tro Nivaldo J., 2021. Chemistry – structure and properties, ISBN: 9789925588169, BROKEN HILL PUBLISHERS LTD
- Ebbing D. D., Gammon S.D., 2011. General Chemistry, ISBN: 9789607990662, Εκδόσεις ΤΡΑΥΛΟΣ
- Brown T.L., Bursten B., LeMay E., Murphy C., Woodward P., 2015. ISBN-13: 9789604185153