



ANALYTICAL CHEMISTRY
Syllabus

GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
DEPARTMENT	FOOD SCIENCE & NUTRITION		
PROGRAMME	UNDERGRADUATE		
COURSE CODE	ΒΠ312	SEMESTER	C
COURSE	ANALYTICAL CHEMISTRY RESPONSIBLE: D. MAKRIS		
TEACHING ACTIVITIES		TEACHING HOURS PER WEEK	CREDIT UNITS
		LECTURES	3
		LABORATORY	3
			6
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 concepts pertaining to inorganic analytical chemistry. Specific attention is given to comprehension of basic notions related with statistical data processing and to methods of quantitative determinations. Laboratory exercises intent to accustom students to basic concepts of inorganic analysis methods of specific groups of organic compounds and train them on basic calculations related with reaction handling for quantitative analyses.

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

- *Understand the basic principles of analytical chemistry and its applications*
- *Have knowledge of basic notions, principles and theory related with chemical analysis and data processing.*
- *Understand and evaluate methods of analytical chemistry, and use them for sample analysis.*
- *Select the most appropriate methodology for carrying out specific chemical analyses.*
- *Properly and safely use laboratory devices and equipment.*
- *Elaborate statistical data obtained from experimental procedures and draw conclusions.*
- *Comprehend the impact of data processing on the reliability of the results.*
- *Understand the implementation of methods of analysis on the determination of food composition.*



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: Basic tools and functions of analytical chemistry
 2nd week: Statistics – data processing
 3rd week: Sampling
 4th week: Reactions in aqueous solutions
 5th week: Thermochemistry and chemical thermodynamics
 6th week: Chemical kinetics
 7th week: Chemical equilibrium
 8th week: Applications of chemical equilibrium
 9th week: Equilibrium of monoprotic acids - bases
 10th week: Gravimetric analysis
 11th week: Titrations
 12th week: Exercises
 13th week: Overview

Laboratory course: 1. Introduction 2. Laboratory safety – Good laboratory practice 3. Antacid analysis. 4. Determination of water hardness 5. Determination of chlorine in water 6. Determination of iron concentration 7. Determination of ascorbic acid 8. 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	72	
	Sum	150	
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

Harris C. Daniel, Lucy A. Charles, 2021. Analytical Chemistry. Broken Hill Publishers Ltd. ISBN: 9789925576111