MODULE LAYOUT

1. GENERAL

SCHOOL	FOOD AND NUTRITIONAL SCIENCES		
DEPARTMENT	FOOD SCIENCE AND HUMAN NUTRITION		
STUDY LEVEL	*Undergraduate*		
MODULE CODE	**1200**	**SEMESTER**	5th
MODULE TITLE	METHODS OF FOOD ANALYSIS		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS**
Lectures and Practicals	5 (2+3)	5

COURSE TYPE	Scientific Area Skills development in laboratory
PREREQUISITES	
LANGUAGE	Greek
IS THE COURSE OFFERED for ERASMUS STUDENTS?	Yes (in English)
COURSE WEB PAGE	https://mediasrv.aua.gr/eclass/courses/ETDA113/ https://mediasrv.aua.gr/eclass/courses/ETDA114/

2. LEARNING OUTCOMES

Learning Outcomes

Course objective

Introduction to basic analytical techniques widely used to determine the quality, authenticity, nutritional value and chemical safety of food. Special emphasis is given to instrumental techniques and the corresponding organology, such as gas and liquid chromatography, mass spectrometry, visible-ultraviolet, infrared spectroscopy

Aims of the course:

Students will acquire the theoretical background and laboratory skills to be able to select, organize and execute the appropriate method in order to identify key characteristics and ingredients (natural and artificial) of food.

In parallel, the following is sought:

• the direct connection of theoretical knowledge with practical application
• understanding the basic operational parameters on which each method depends
• learning the correct procedure for measuring, processing data and evaluating the final result
• the development of skills for the bibliographic search of appropriate analytical methods for food analytes

General Competenses

- Individual work
- Decision making
- Producing new research ideas
- Promotion of free, creative and inductive thinking

3. MODULE CONTENT

General Information
Introduction to Food Analysis
Sampling and Sample Preparation
Evaluation of Analytical Data
Compositional Analysis of Foods
Moisture and Total Solids Analysis
Ash Analysis
Fat Analysis
Protein Analysis
Carbohydrate Analysis
Vitamin Analysis
Traditional Methods for Mineral Analysis
Chemical Properties and Characteristics of Foods
pH and Titratable Acidity
Fat Characterization
Protein Separation
Instrumental Methods of Analysis and Application in Foods
Gas Chromatography
Liquid Chromatography
Thin Layer Chromatography
Ultraviolet, Visible and Infrared Spectroscopy
Mass Spectrometry

4. TEACHING and LEARNING METHODS - Evaluation

TEACHING METHOD	Physical presence (teaching in the auditorium and laboratory)
USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES	Power point presentations Teaching support through access to the e-class platform and MS Teams Student contact via e-mail
TEACHING ORGANISATION	

Activity	***Φόρτος Εργασίας Εξαμήνου***
Lectures	(2χ13) 26
Laboratory practicals	(3χ13) 39
Writing assignments	25
Study and analysis of scientific literature	6
Weekly study hours	26
Final exam	3
Total of Course (25 work hours per credit unit)	***125***

STUDENTS EVALUATION	I. Final written examination on the course's theory including: 1. Short-answer questions (50%) 2. Multiple choice questions (40%) 3. Problem solving (10%) Marking Scale: 0-10. Minimum Passing Mark: 5. II. The evaluation on the course's laboratory practicals is determined by:

	1. Oral examination during laboratory practicals to determine the degree of student's preparation (5%) 2. Writing assignments (25%) 3. Final written examination in the laboratory part of the course which includes short answer questions and problem solving (70%) Marking Scale: 0-10. Minimum Passing Mark: 5. The final course's mark is the average of the marks on Theory and Practicals

5. BIBILIOGRAPHY

Proposed literature for theory and practicals:

- Food Analysis, S. Nielsen, Purdue University, Kluwer Academic.
- Food Analysis. Theory and Practice, Y.Pomeranz and C Meloan Chapman and Hall, New York. Food composition and Analysis. L.W.Autrand, A.E.Woods, M.R.Wells, AVI Book, New York.
- Food Analysis. Theory and Practice, Y. Pomeranz and C. Meloan, Chapman and Hall, New York.

Journals:

- Food Chemistry
- Journal of Agricultural and Food Chemistry
- Journal of Food Composition & Analysis