

COURSE OUTLINE

1. GENERAL

SCHOOL	FOOD AND NUTRITIONAL SCIENCES		
ACADEMIC UNIT	FOOD SCIENCE AND HUMAN NUTRITION		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	1200	SEMESTER	5 th
COURSE TITLE	METHODS OF FOOD ANALYSIS		
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 and Laboratory exercises		5 (2+3)	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	Specialised general knowledge, Skills development		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (in English)		
COURSE WEBSITE (URL)	<u>Methods of Food Analysis - Τμήμα ΕΤΑΑ</u>		

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

This course is one of the core subjects in the field of Food Science. It introduces students to fundamental analytical methods widely applied in assessing food quality, authenticity, nutritional value, and chemical safety. Emphasis is placed on instrumental techniques and their associated instrumentation, including gas chromatography, liquid chromatography, mass spectrometry, UV–visible spectrometry, and infrared spectrometry.

The course aims to provide students with both the theoretical foundation and the laboratory skills necessary to select, organize, and implement appropriate analytical methods for identifying key characteristics and components—both natural and artificial—of food products.

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

- Understand the essential operational parameters that determine the effectiveness of food analysis methods
- Conduct valid measurements of food components and process the resulting data
- Evaluate and interpret analytical results based on scientific evidence
- Critically and responsibly use scientific sources to identify the most suitable analytical methods for specific food components
- Integrate theoretical knowledge with practical laboratory applications

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?

<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>
<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>
<i>Decision-making</i>	<i>Respect for the natural environment</i>
<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>
<i>Team work</i>	<i>Criticism and self-criticism</i>
<i>Working in an international environment</i>	<i>Production of free, creative and inductive thinking</i>
<i>Working in an interdisciplinary environment</i>	<i>.....</i>
<i>Production of new research ideas</i>	<i>Others...</i>
	<i>... ..</i>

Working independently
Team work
Decision-making
Production of free, creative and inductive thinking

3. SYLLABUS

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

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face (teaching in the auditorium and laboratory)														
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Power Point presentations Teaching support through access to the e-class platform Student contact via e-mail and MS Teams														
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>	<table> <tr> <th>Activity</th><th>Semester workload</th></tr> <tr> <td>Lectures</td><td>26</td></tr> <tr> <td>Laboratory practice</td><td>39</td></tr> <tr> <td>Writing assignments</td><td>25</td></tr> <tr> <td>Study and analysis of bibliography</td><td>6</td></tr> <tr> <td>Weekly study hours</td><td>26</td></tr> <tr> <td>Final exam</td><td>3</td></tr> </table>	Activity	Semester workload	Lectures	26	Laboratory practice	39	Writing assignments	25	Study and analysis of bibliography	6	Weekly study hours	26	Final exam	3
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	Course total	125
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 examination of patient, art interpretation, other</i> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>		
	I. Written final exam on the theory of the course, including: 1. Short answer questions (50%) 2. Multiple choice questions (40%) 3. Problem solving (50%) II. The examination on the laboratory part of the course consists of: 1. Oral examination during the exercises to assess the degree of preparation (5%) 2. Written individual report (25%) 3. Final written exam in the laboratory part of the course, which includes short-answer questions and problem solving (70%) The final grade for the course is the average of the grades in the Theory and Laboratory parts Grading scale: 0-10 Minimum passing grade: 5 Grades posted on the e-student platform (in draft form for 1 week before final submission)	

5. ATTACHED BIBLIOGRAPHY

- <i>Suggested bibliography:</i> ● 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. - <i>Related academic journals:</i> ● Food Chemistry ● Journal of Agricultural and Food Chemistry ● Journal of Food Composition & Analysis ● Journal of the American Oil's Chemist Society
