**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 AreaSkills 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/> |

1. **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
 |

1. **MODULE CONTENT**

|  |
| --- |
| **General Information**Introduction to Food AnalysisSampling and Sample PreparationEvaluation of Analytical Data**Compositional Analysis of Foods**Moisture and Total Solids AnalysisAsh AnalysisFat AnalysisProtein AnalysisCarbohydrate AnalysisVitamin AnalysisTraditional Methods for Mineral Analysis**Chemical Properties and Characteristics of Foods**pH and Titratable AcidityFat CharacterizationProtein Separation**Instrumental Methods of Analysis and Application in Foods**Gas ChromatographyLiquid ChromatographyThin Layer ChromatographyUltraviolet, Visible and Infrared Spectroscopy1. Mass Spectrometry
 |

1. **TEACHING and LEARNING METHODS - Evaluation**

|  |  |
| --- | --- |
| **TEACHING METHOD** | Physical presence (teaching in the auditorium and laboratory) |
| **USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES** | Power point presentationsTeaching support through access to the e-class platform and MS TeamsStudent 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** | Ι. 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. ΙΙ. 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 |

1. **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
 |