**MODULE LAYOUT**

1. **GENERAL**

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| **SCHOOL** | FOOD AND NUTRITIONAL SCIENCES | | | | |
| **DEPARTMENT** | FOOD SCIENCE AND HUMAN NUTRITION | | | | |
| **STUDY LEVEL** | *Undergraduate* | | | | |
| **MODULE CODE** | **3436** | **SEMESTER** | | 9th | |
| **MODULE TITLE** | FOOD PHYSICAL CHEMISTRY | | | | |
| **INDEPENDENT TEACHING ACTIVITIES** | | | **WEEKLY TEACHING HOURS** | | **ECTS** |
| Lectures & laboratory | | | 5 | | 5 |
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| **COURSE TYPE** | Scientific area | | | | |
| **PREREQUISITES** |  | | | | |
| **LANGUAGE** | Greek | | | | |
| **IS THE COURSE OFFERED forERASMUS STUDENTS?** | No | | | | |
| **COURSE WEB PAGE** | https://mediasrv.aua.gr/eclass/courses/ETDA192/ | | | | |

1. **LEARNING OUTCOMES**

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| **Learning Outcomes** | |
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| This course is a basic course in the field of Food Physical Chemistry.  Its contents aim to the introduction of students to the basic terms of liquid and solid state, colloids, biopolymers, gels, emulsions and foams.  The major goal is for students to get to know the applications that Physical Chemistry can have in the food Industry (e.g. gels, emulsions  When completing this course, students should be able to understand the basic properties of liquids, absorption, colloids, food hydrocolloids (biopolymers) and their applications/ properties, emulsions, emulsifiers, foams. | |
| **General Competenses** |
| * Retrieve, analyze and synthesize data and information, with the use of necessary technologies * Future research * Make decisions * Work autonomously * Work in teams * Be critical and self-critical | |

1. **MODULE CONTENT**

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| * + - 1. Liquids (properties, surface tension)       2. Liquids (viscosity, Newtonian and non Newtonian liquids, thermodynamic conditions for liquid-vapour equilibrium)       3. Solids       4. Mesomorphs       5. Adsorption       6. Ion-exchange resins       7. Colloids (definition, types, electrolytes)       8. Colloids (properties, ζ-potential, flocculation)       9. Biopolymers       10. Biopolymer solutions and gels       11. Emulsions (definition, o/w and w/o emulsions, properties, stability)       12. Emulsions (emulsion theories, emulsifiers)       13. Foams |

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

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| **TEACHING METHOD** | Direct learning and lab experiments |
| **USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES** | Power point presentations  Communication via the e-class platform |
| **TEACHING ORGANISATION** | |  |  | | --- | --- | | ***Activity*** | ***Work load for the semester (h)*** | | Lectures | 26 | | Laboratory work | 39 | | Private studying | 26 | | laboratory assays writing | 34 | |  |  | |  |  | | ***Total contact hours and training*** | ***125*** | |
| **STUDENTS EVALUATION** | FOR THE THEORETICAL PART  I. Written Examination that includes right or wrong questions, questions that require brief answers etc  FOR THE LABORATORY  I. Written examination (80%)  II. Written reports for laboratory exercises (20%) |

1. **BIBILIOGRAPHY**

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| ***-Proposed Literature:***   1. Lecture Notes for food physical chemistry, V. Evageliou (AUA) 2. Laboratory Notes for food physical chemistry, V. Evageliou (AUA) |