MODULE LAYOUT

1. GENERAL

SCHOOL	FOOD AND NUTRITIONAL SCIENCES		
DEPARTMENT	FOOD SCIENCE AND HUMAN NUTRITION		
STUDY LEVEL	*Undergraduate*		
MODULE CODE	**3360**	**SEMESTER**	2nd
MODULE TITLE	PHYSICAL CHEMISTRY		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS**
Lectures & laboratory	5	4.5

COURSE TYPE	Scientific area, background knowledge
PREREQUISITES	
LANGUAGE	Greek
IS THE COURSE OFFERED forERASMUS STUDENTS?	No
COURSE WEB PAGE	https://mediasrv.aua.gr/eclass/courses/ETDA141/

2. LEARNING OUTCOMES

Learning Outcomes

This course is a basic introductory course to the field of Physical Chemistry.

Its contents aim to the introduction of students to the basic terms of gas state, thermodynamics, solutions, phases, chemical kinetics and photochemistry.

The major goal is to introduce the students to the basic concepts of Physical Chemistry that govern the phenomena and the techniques used for the study and treatment of foods

When completing this course, students should be able to understand the difference between ideal and real gases, know the basic thermodynamic parameters and their application, formation of solutions, concentration of solutions, distillation, colligative properties, understand a phase diagram, understand terms of chemical kinetics and understand the interactions of light and matter.

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

3. MODULE CONTENT

1.Gases (Gas laws. Ideal and not ideal behaviour of gasses)
2.Thermodynamics (Zero and First Laws of Thermodynamic,c_p, c_v)
3.Thermodynamics (Second and Third Laws of thermodynamics, enthalpy, entropy)
4.Thermodynamics (Free energy, chemical potential)

5.Solutions (Terms, concentration, Types)
6.Solutions (Liquid solutions, distillation)
7.Colligative properties
8.Phase equilibrium
9.Partition law of Nernst
10.Chemical kinetics (velocity, order)
11.Chemical kinetics (kinetical equations)
12. Chemical kinetics (kinetic theories, Catalysis)
13. Photochemistry

4. TEACHING and LEARNING METHODS - Evaluation

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	39
Laboratory work	26
Private studying	15
laboratory assays writing	32.5
Total contact hours and training	***112.5***

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%)

5. BIBILIOGRAPHY

-Proposed Literature:

1. Lecture Notes for physical chemistry, V. Evageliou (AUA)
2. Laboratory Notes for food physical chemistry, V. Evageliou (AUA)

The students also select one of the following books

1. Abbreviated Physical chemistry, Giannakoudakiw et al., Zitis pubications
Physical chemistry, Karaiskakis G, Travlos publications