UNIVERSITY OF PATRAS
SCHOOL OF HEALTH SCIENCES
DEPARTMENT OF PHARMACY
UNDERGRADUATE STUDIES' COURSES

COURSE DESCRIPTION: **BIOCHEMISTRY I**
COURSE CODE: **PHA-A22-NEW**

BIOCHEMISTRY I
COURSE DESCRIPTION

1. GENERAL

SCHOOL	HEALTH SCIENCES		
SEPARTMENT	PHARMACY		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	**PHA-A22-NEW**	**SEMESTER OF STUDIES**	**2nd**
COURSE TITLE	BIOCHEMISTRY I		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	4	7
Laboratory courses	3	

COURSE TYPE	Scientific Field course
PREREQUISITE COURSES:	-
TEACHING AND ASSESSMENT LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Not offered
COURSE WEBPAGE (URL)	http://www.pharmacy.upatras.gr/images/DS/PHA-A22-EN.pdf

2. LEARNING OUTCOMES

Learning Outcomes
Within the course Biochemistry I, the student deals with the study of the structure, functions and interactions of cellular and intercellular components such as proteins, sugars, lipids, nucleic acids and other biomolecules. The main objective is for the student to understand the importance of the tertiary structure of the basic biomolecules and how this knowledge leads to an understanding of their function. At the same time, however, it will also deal with genetic code, protein synthesis, substance transfer through semipermeable membranes and the transmission of electrical and / or chemical messages. The knowledge of Biochemistry I will enable him to understand Physiology, Pharmacology and deepen in Immunology, Molecular Biology-Genetics and Pharmacoekonomics.
General Abilities
Data and information searching, analysis and combination, using the appropriate technologies and databases Team Work Promote free, creative and inductive thinking

3. COURSE CONTENT

Lectures

- Introduction to Biochemistry - Biochemical processes, basic elements of chemistry
- Amino acids - peptides - proteins
- Structure, levels of organization and folding of proteins (primary-secondary-tertiary-quaternary structure)
- Protein - Genome
- Structure-function correlations in the families of proteins (antibodies, collagen, myoglobin and hemoglobin)
- Protein separation methods - protein purification and characterization
- Nucleic acids (DNA-RNA structure, structure-function relationship, therapeutic prospects-DNA vaccines)
- Bioinformatics
- Bioenergy and high energy compounds
- Enzymes (chemical nature, classification, mode of action, mechanisms, factors affecting enzymatic activity) - Enzymatic kinetics
- Biosynthesis of amino acids and nucleotides
- DNA replication and recombination
- Synthesis and processing of RNA
- Synthesis of proteins
- Gene expression control

Lab Exercises

- Introduction to the lab
- Protein electrophoresis
- DNA analysis
- Chromatography

4. TEACHING AND LEARNING METHODS - ASSESSMENT

Teaching method	Interactive teaching within a classroom
Use of information and communication technologies	• The teaching and learning process is supported by the Upatras e-class platform. The teaching material (lectures, tutorials, laboratory experimental protocols) is uploaded and stored on the e-class and it is freely accessible to all students. • Teaching process is supported by Information and Communication Technologies (ICTs).
Teaching organization	***Teaching Method*** — ***Semester Workload*** Lectures — 52 Laboratory Work + Tutorials — 39 Un-supervised study — 84 ***Total number of hours for the Course*** **(25 hours of work-load per ECTS credit)** — **175**

STUDENT ASSESSMENT	Assessment language: Greek Evaluation of the students is carried out through written examination at the end of the semester and oral evaluation during the laboratory courses. Written examination and oral evaluation is carried out in Greek language. Written examination includes the description for a number of theory topics and multiple-choice exercises.

5. RECOMMENDED LITERATURE

Suggested Books: (in greek)
Jeremy Berg, John Tymoczko and Lubert Stryer, ΒΙΟΧΗΜΕΙΑ
R. Ochs, Βιοχημεία, Εκδόσεις ΠΑΡΙΣΙΑΝΟΥ