BIOCHEMISTRY I

Course code number: NP18-15
Curriculum: Undergraduate
Semester: 2rd
Course Type
Background/General knowledge
X Scientific area (pharmacy)
Credit Units (ECTS): 5
Lectures (hours/week): 2
Tutorials (hours/week): -
Laboratory work (hours/week): 1
Course coordinator: Giannakouros Thomas, Associate Professor
Tutors:

Giannakouros Thomas, Associate Professor
Office 501, Chemical building 4th floor
Cooperation with students: daily 11-12 a.m.
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Nikolakaki Eleni, Associate Professor
Office 505, 4th floor building Chemical
Cooperation with students: daily 11-12 a.m.
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Pantazaki A. Professor
Contact: by email natasa@chem.auth.gr
Konstantinos Xanthopoulos, Assistant Professor
Contact: by email xantho@pharm.auth.gr.

Aims of the course:
The understanding on the part of students, the structure of biological macromolecules, such as proteins, nucleic acids, carbohydrates and lipids. It also analyses the structure, classification, operating mechanism and specificity of enzymes, as well as the principles of biological oxidation that lead to production and save energy for living organisms.
During the courses are given useful examples for students of pharmacy on the effect of drugs that target specific bio-molecules.
Skills: Familiarity with basic concepts of Biochemistry
Teaching methods: Lectures, laboratory exercises
Contents of the course:
Introduction. Amino Acids. Structure and biological function of proteins. Catalytic proteins. Enzymes. Biologically important carbohydrate. Biologically important lipids. Nucleic acids structure. Biological oxidations.
Assisting personnel: Papi Rigini RLT'S
Proposed literature:
1. Introduction to Biochemistry:J.C. Georgatsos (versions: Giachoydi) 6th Edition, Thessaloniki, 2005).
2. Biochemistry, volume i: Berg Tymoczko L.J., M.J., Stryer l. (A. Aletras, I.D. Balkana Drainas, H. Kouvelas, G.K. Papadopoulos, M. Franc-Lazaridi versions Uc), 2005.
3. Basic Biochemistry: K.a. Dimopoulos, p. Andonopoulou-Wilson (versions: Co-edition with P. Andonopoulou-Wilson-Provider-Publisher KONSTANTINOS A. DEMOPOULOS) 2nd edition, Athens 2009.
Educational activities:
Monitoring of lectures and laboratory exercises
Evaluation process and methods:

Written exams at the end of the semester, both in theoretical lessons and laboratories. The examinations take place at the end of the semester.

Use of ICTs (Information and Communication Technologies) / Electronic distribution of the lectures

The lectures of the course presented using slides.

Announcements, rankings, etc. posted on the Bulletin Board of the laboratory of biochemistry.

Teaching:

(Lectures/Workshops/Tutorials)

The teaching of the course are lectures and laboratory exercises

A) **Lecture**

B) The lectures (1 hour) take place twice a week

Lecture	Title	Tutor
1	Introduction to Biochemistry	E. Nikolakaki
2	Amino Acids	E. Nikolakaki
3	Properties of amino acids	E. Nikolakaki
4	Peptide bond in primary protein structure	E. Nikolakaki
5	Examples of formulae peptides	E. Nikolakaki
6	Higher protein configurations.	E. Nikolakaki
7	Fidelity-modulation Properties of proteins	E. Nikolakaki
8	Structural, functional, regulatory proteins	E. Nikolakaki
9	Defence mobility proteins	E. Nikolakaki
10	Storage, infectious protein-Denaturing proteins	E. Nikolakaki
11	Enzymes generally – Rank-Name	E. Nikolakaki
12	Cytochromes- Co-enzymes	E. Nikolakaki
13	Kinetic enzymatic reactions	E. Nikolakaki
14	Setting the action of enzymes	E. Nikolakaki
15	Inhibitors-Actuators- Stereoselectivity	E. Nikolakaki
16	Allosteric phenomenon-Isoenzymes	E. Nikolakaki
17	General biological oxidation	T. Giannakouros
18	Krebs Cycle-Cycle glyoxylic acid	T. Giannakouros
19	Respiratory chain	T. Giannakouros
20	Oxidative phosphorylation	T. Giannakouros
21	Generally on carbohydrates-Starch-Glycogen-Glycoproteins	T. Giannakouros
22	Generally on lipids, triglycerides-fatty acid-Phospholipid-Derived isoprene Membranes-Lipoproteins	T. Giannakouros

23	Structure of nucleic acids	T. Giannakouros
24	Properties of nucleic acids	T. Giannakouros

B) **Laboratory work**

Laboratory	Title	Tutor
1	Isolation,study and properties of osin	T. Giannakouros, Rigini Papi, postgraduate students
2	Kinetic enzymatic reactions	T. Giannakouros, Rigini Papi, postgraduate students
3	REDOX enzymes	E. Nikolakaki, K. Xanthopoulos, Rigini Papi, postgraduate students
4	Gene expression regulation in Escherichia coli (BL21)	E. Nikolakaki, K. Xanthopoulos, Rigini Papi, postgraduate students