SYLLABUS

1. Course title:

Biochemistry I

2. Code:

3. Cycle of study:

1

4. ECTS credits:

7

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

Completed courses (both lectures and laboratory) of BIOLOGY and ORGANIC CHEMISTRY

7. Class restrictions:

For Faculty of Pharmacy students only

8. Duration / semester:

1 5

9. Weekly contact hours:

9.1. Lectures:	3
9.2. Seminars:	0
9.3. Laboratory/Practice classes:	3

10. Faculty:

Faculty of Pharmacy

11. Department/study program:

Pharmacy (integrated 1st and 2nd cycles)

12. Lecturer:

PhD Lejla Begić, full professor

13. Lecturer's e-mail:

lejla.begic@untz.ba

14. Web site:

www.farmacy.untz.ba

15. Course aims:

The aim of the course is to provide an understanding of composition and structure of living organism, and mechanisms of chemical processes in living organisms, at a molecular level.

16. Learning outcomes:

Ability to understand and apply in the laboratory, the knowledge and methods of general biochemistry, DNA analysis, and enzyme kinetics.
Ability to understand the fundamental biological and chemical aspects of living organisms and ability to describe the physiological processes at molecular level.

17. Course content:

Foundations of Biochemistry. Water. DNA and RNA: structure, conformation and synthesis. Protein synthesis. Posttranslational modification and protein targeting. Recombinant DNA technology and Biotechnology. Proteins: composition and structure. Structural levels of proteins. Fibrous and globular proteins. Protein folding and denaturation. Chaperones. Conformation, dynamics and function. Enzymes: classification, kinetics and control. Coenzymes. Triacylglycerols, phospholipids, cholesterol, sphingolipids, eicosanoids. Molecular constituents of membranes. Membrane transport. Carbohydrates and glycobiology. Monosaccharides, disaccharides. Polysaccharides. Glycoconjugates. Vitamins.

18. Learning methods:

Lectures. Laboratory exercise in small groups. Consultations. Lectures include all topics cited in course content. Complete lecture papers are available for students. Experimental exercises are divided in two cycles. Every cycle is ended by colloquium. In principle, topics in the practicals follow related themes in the lectures. Laboratory report and results are recorded at a dedicated place in Biochemistry Practicum Manual.

19. Assessment methods:

Learning achievement evaluation is conducted by two colloquiums and two partial exams. Both, colloquiums and exams, are written. Colloquium duration is 45 minutes. Colloquiums cover theoretical basis for the laboratory exercise and procedures needed for the experiment. The theoretical basis for the exercise, a course of the exercise, and the procedures to be followed during the exercise are given in the Biochemistry Practicum Manual which is a recommended literature. Laboratory exercises are divided in two cycles, each cycle finishes with a colloquium. A theoretical knowledge is assessed by two partial exams. First partial exam is conducted after 8 weeks of lecturing, and it covers a first half of the course topics. Second partial exam is conducted after the lecturing is finished, and it covers the rest of the course topics. For those who failed to pass the partial exam, a make-up exam is organised. The final exam is conducted for students who have failed to timely pass one or both partial exams. A student not satisfied with the exam grade received upon the written exam, may request an oral exam to make-up the grade.

20. Assessment components:

Assessment methods comprise evaluation of pre-exam activities, colloquiums, and partial exams.
Partial exam may provide a maximum of 30 points, while 16 points is a minimum requested to pass the exam. Two partial exams yield a maximum of 60 points.
Colloquium may provide a maximum of 15 points, while 8 points is a minimum requested to pass the colloquium. Two colloquiums yield a maximum of 30 points.
A student who is active at lecture classes may receive up to 5 points, and a student active at laboratory classes may receive up to 5 points.

21. Required reading list:

1. Begić L. (2008) DNA, RNA, protein, Tuzla, Print Com.
2. Karlson, P.(1993) Biokemija“ ("Biochemistry"), Zagreb, Školska knjiga
3. Begić, L. i sar.(2004) Praktikum iz biohemije sa teoretskim osnovama“ ("Practicum of Biochemistry with theoretical fundamentals"), Tuzla, PrintCom

22. Web sources:

23. Applicable starting from the academic year:

2012/13

24. Adopted in the Faculty/Academy session: