Study Programme : BSc in Ecology

Degree level: Bachelor degree

Course Title: Biochemistry

Professor: dr Danijela Kojić

Required Course

Number of ECTS: 7

Prerequisites: -

Course Objective:
This course focuses on the understanding of molecular organisation and metabolic processes of the cell.

Course Outcome:
After this course students should be able to understand basic chemical processes in the cell as well as to use acquired knowledge in their further studies.

Course Content:

Theoretical part

Lectures are organised into following sections: definition of biochemistry – chemical basis of life, the chemistry of five classes of polymeric biomolecules and their monomeric building blocks(carbohydrates, lipids, amino acids, proteins, nucleic acids); introduction to enzymology – classes of enzymes, enzyme specificity and mechanisms of action as well as the regulation of their activity; flow of genetic information - replication, transcription, translation and regulation of gene expression; bioenergetics and basic cellular metabolic processes (respiratory chain and oxidative phosphorilation, catabolism of carbohydrates, amino acids and lipids); cellular signaling and the regulation of metabolism.

Practical part

Isolation, basic reactions and chemical properties of biomolecules – analytical methods for their detection (electrophoresis, chromatography, optical methods), enzyme kinetics - Michaelis-Menten, optimal temperature and pH for enzyme activity, types of enzyme inhibition as well as detection of major metabolites in urin and blood (keton bodies, cholesterol, bilirubin, creatinin).

Reading List:
Principles of Biochemistry, A.L.Lehninger, D.L.Nelson i M.M.Cox, Worth Publishers, 2004, New York
Biochemistry, D.Voet, J.G.Voet, John Wiley & Sons, 1995, New York

Total hours:				
Lectures:	Practicals:	Other:	Student research work:	

Methods of instruction:

Assessment (maximum number of points 100)

Requirements	**points**	**Final exam**	**points**
Active participation in lectures	5	Oral exam	70
Active participation in practicals	5		
Test(s) or			
Pre-exam practical	20		