University: University of Presov in Presov	
Faculty: Faculty of Humanities and Natural Sciences	
Subject code: 2BIO/EROSJBIOC/22	**Subject name:** Biochemistry
Method of educational activities: lecture/exercise	
Number of ects: 6	
Semester: Spring	
Degree of study: bachelor	
Evaluation: Continuous test (30 %) Exam (70 %)	
Education outcomes: Understand the principles of various fields of chemistry and biology (organic chemistry, analytical chemistry, biochemistry, genetics, metabolism, and molecular biology). Demonstrate a thorough knowledge of the intersection between the disciplines of Biology and Chemistry. Demonstrate a proficiency in developing relevant biochemical questions, carrying out laboratory investigations to answer those questions, and critically analyzing.	
Syllabus: The table of the elements and the chemistry of the most important elements, the occurrence of the elements, their chemical speciation in the human body, isotope theory, solubility and complex formation. Basic acid-base theory, titrimetric curves. Structure and reactivity of important organic molecules. Chemical properties of amino acids, lipids and carbohydrates. Structure, function and kinetics of enzymes. Membranes and transport. Chemical properties of nucleic acids. Biosynthesis of DNA, RNA and protein. Genotype and phenotype. Usage and design of pro- and eukaryotic vectors. Enzymes as tools in gene technology. Cloning of DNA. PCR. Current techniques based on DNA and RNA. High-energetic molecules. Energy metabolism in the cell. The metabolism of carbohydrates, lipids and amino acids. Nutrition.	
Literature: 1.Campbell, MK (2012) Biochemistry, 7th ed., Published by Cengage Learning 2.Campbell, PN and Smith AD (2011) Biochemistry Illustrated, 4th ed., Published by Churchill Livingstone 3.Tymoczko JL, Berg JM and Stryer L (2012) Biochemistry: A short course, 2nd ed., W.H.Freeman 4.Berg JM, Tymoczko JL and Stryer L (2011) Biochemistry, W.H.Freeman and Company 5. Voet, D., Voet, J.G. Biochemistry. Fourth Edition. John Wiley&Sons Inc. ISBN 978-0470-57095-1.1512pp. 6. Voet, D., 2011. Biochemistry. Wiley. ISBN 9780470570951. 7. Voet, D., 2018. Voet´s Principles of Biochemistry Global Edition. John Wiley&Sons Inc. ISBN 9781119451662. 1200pp. 8. Fry, M., 2011. Essential Biochemistry for Medicine. Wiley-Blackwell. ISBN 978-0-470-74327-0. 308pp. 9. Reed, S. Essential Physiological Biochemistry. Wiley-Blackwell. ISBN978-0-47002-636-6. 330pp. 10. Koolman,J., Roehm, K.-H., Wirth, J., 2012. Color Atlas of Biochemistry.Thieme. ISBN 978-3-13-100373-7. 495pp.	
Language: english	
Evaluation of subject:	

A	B	C	D	E	FX

Teacher: RNDr. Mária Konečná, PhD.; prof. MVDr. Janka Poráčová, PhD., MBA

Date of last change: 28.08.2020