



УНИВЕРЗИТЕТ У БАЊОЈ ЛУЦИ
UNIVERSITY OF BANJA LUKA
ПРИРОДНО-МАТЕМАТИЧКИ ФАКУЛТЕТ
FACULTY OF NATURAL SCIENCES AND MATHEMATICS



CHEMISTRY DEPARTMENT

FIRST CYCLE OF STUDY

Chemistry

Course name	Theoretical Organic Chemistry			
Course code	Course status	Semester	Hours of instruction	ECTS
1C16HOS461	required	V	3+2	7
Teacher(s)	Prof. Milica Balaban PhD			

Prerequisite course(s)	Entry requirements
Organic Chemistry 1	Passed exam

Course goals
The aim of the course <i>Theoretical Organic Chemistry</i> is to acquire detailed knowledge of the three-dimensional structure of organic molecules and its impact on the properties of molecules and mechanisms of organic reactions, as well as further upgrading of stereochemical concepts.

Learning outcomes
The student presents the three-dimensional structure of organic molecules in different ways and translates the planar representation into three-dimensional and vice versa. The student clearly distinguishes different levels of structural organization in the molecule and between molecules and can explain the reasons for stereospecificity and stereoselectivity in selected reactions

Course content
Chemical bond and structure of molecules. Hybridization of atomic orbitals of carbon atoms. Acids and bases in organic chemistry. Constitution, conformation, configuration. Conformational analysis. Conformation stability. Basic and advanced stereochemical concepts. Stereoisomerism. Asymmetric atom. Optical isomerism. Stereochemistry of cyclic compounds. Stereochemical effects in the molecule. Intermolecular interactions. Dynamic stereochemistry. Stereoselectivity and stereospecific reactions. Pericyclic reactions. Mechanisms of the most important organic reactions from the stereochemical aspect.

Teaching methods
Lectures and computational exercises

Books and other learning materials
H. B. Kagan: Organska stereochemija , Hemijski fakultet, Beograd, 2005. M. Baranac-Stojanović: Zbirka zadataka iz stereochemije sa rešenjima , Hemijski fakultet, Beograd, 2013. S. H. Pine, J. B. Hendrikson, D. J. Cram, G. S. Hammond: Organska kemija , Školska knjiga, Zagreb, 1984. M. Lj. Mihailović: Osnovi teorijske organske hemije i stereochemije , Građevinska knjiga, Beograd, 1990.

Course activities and grading method
The activity and the colloquium refer to the exercises that are a condition for taking the final exam. The results of these tests are included in the final grade only if they exceed 50% of the points provided for a given form of test during the semester.

Activity and colloquium	20	Test	20
		Final exam	60

Additional course notes
/

Name of the teacher who prepared this form	Milica Balaban
--	----------------