



УНИВЕРЗИТЕТ У БАЊОЈ ЛУЦИ
UNIVERSITY OF BANJA LUKA



ПРИРОДНО-МАТЕМАТИЧКИ ФАКУЛТЕТ
FACULTY OF NATURAL SCIENCES AND MATHEMATICS

CHEMISTRY DEPARTMENT

FIRST CYCLE OF STUDY

Chemistry/Chemistry Education

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|-------------|---------------------------------|----------|----------------------|------|
| Course name | Organic Chemistry 1 | | | |
| Course code | Course status | Semester | Hours of instruction | ECTS |
| 1C16HOS396 | required | III | 3+3 | 8 |
| Teacher(s) | Prof. Milica Balaban PhD | | | |

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|------------------------|--------------------|
| Prerequisite course(s) | Entry requirements |
| General Chemistry | Passed exam |

Course goals

The aim of the course *Organic Chemistry 1* is to provide basic information on the structure and binding in organic molecules and nomenclature of organic compounds, and to introduce the concepts of stereochemistry of molecules and mechanisms of addition, substitution and elimination reactions on simple examples.

Learning outcomes

The student applies the rules of nomenclature and names complex organic compounds, and based on the structure of the organic compound predicts its basic physical and chemical characteristics. The student classifies organic compounds into main classes and mechanistically describes the main types of chemical reactions in organic chemistry. The student understands and explains the correlation between the hybridization of a carbon atom and the shape of molecules in space. The student defines basic stereochemical terms.

Course content

Structure and bonding in organic molecules. Polar covalent bond. Acids and bases in organic chemistry. Alkanes and cycloalkanes. Rules of nomenclature of organic compounds. Isomerism and stereoisomerism. Types of reactions in organic chemistry. Functional group - concept and types. Mechanism of organic reactions - concept and types. Alkenes and alkynes. Basics of stereochemistry. Haloalkanes. Alcohols and ethers. Delocalized π systems. Conjugated compounds. Benzene and aromaticity.

Experimental exercises: Safety measures and work techniques in an organic laboratory.

Methods of isolation, purification and characterization of organic compounds.

Teaching methods

Lectures, computational and laboratory exercises

Books and other learning materials

K K. Peter C.Vollhardt, Neil E. Schore: **Organska hemija**, Hemijski fakultet, Beograd, 2004.

M. Balaban: **Osnove eksperimentalne organske hemije**, Banja Luka, 2018.

B. Rodić Grabovac, M. Balaban, R. Đudić: **Praktikum iz organske hemije**, Banja Luka, 2014.

Course activities and grading method

The activity refers to the lab exercises, which are a condition for taking the final exam. Tests, two tests per semester. The first from the knowledge of nomenclature, isomerism and stereoisomerism. Others from the knowledge of the mechanisms of reactions of the program of Organic Chemistry 1. The results of the above tests are entered in the final grade only if they exceed 50% of the planned points for a given form of test during the semester.

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| Activity | 10 | Tests | 30 |
| | | Final exam | 60 |

Additional course notes

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Name of the teacher who prepared this form Milica Balaban