



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

Course name	<b>Spectroscopy of Organic Compounds</b>			
Course code	Course status	Semester	Hours of instruction	ECTS
1C16HOS1111	required	VI	3+2	6
Teacher(s)	<b>Prof. Milica Balaban PhD</b>			

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

Course goals
The aim of the course is to acquire theoretical and practical knowledge about the most important structural instrumental methods used for the identification and quantitative analysis of organic compounds. Students learn how to prepare a sample, record and interpret the spectrum.

Learning outcomes
Based on the offered spectrum, the student solves the structures of simpler organic compounds. The student understands the principle of operation of appropriate instruments and can choose the most suitable method for determining the structure of an unknown compound.

Course content
UV-Vis spectroscopy. Principle of the method. Absorption in the UV-Vis region. Selection rules. Application of empirical rules for determining the wavelength of the absorption maximum. Infrared (FTIR) spectroscopy. Types of vibration. Infrared spectrum areas. Characteristic absorption for individual functional groups. Nuclear magnetic resonance. Proton NMR spectroscopy. Chemical shift. Integral, coupling constant, signal multiplicity. <sup>13</sup> C NMR spectroscopy. Mass spectrometry. Fragmentation of organic compounds. <i>Exercises:</i> Determining the structure of compounds based on individual and combined spectra. Introduction to working on instruments

Teaching methods
Lectures, computational and practical exercises

Books and other learning materials
S. M. Milosavljević: <b>Strukturne instrumentalne metode</b> , Hemijski fakultet, Beograd, 2004. D. Gođevac, V. Tešević: <b>Strukturne instrumentalne metode – zbirka spektara</b> , Hemijski fakultet, Beograd, 2005. P. Clerc, S. Simon: <b>Tablice za određivanje strukture organskih spojeva sa spektroskopskim metodama</b> , Zagreb, 1982. K. Peter C. Vollhardt, Neil E. Schore: <b>Organska hemija</b> , Hemijski fakultet, Beograd 2004. V. Tešević: <b>Osnove masene spektrometrije organskih jedinjenja</b> , Hemijski fakultet, Beograd, 2013.

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
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Name of the teacher who prepared this form	Milica Balaban
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