

Level: bachelor				
Course title: Instrumental Organic Chemistry ZMH-405				
Status: elective				
ECTS: 7				
Requirements: none				
Learning objectives The goal of this course is to introduce students to modern instrumental methods of chemical structure analysis of organic compounds.				
Learning outcomes Students trained to determine the structure of complex organic compound with modern instrumental methods.				
Syllabus <i>Theoretical instruction</i> Ultraviolet and visible spectroscopy. Absorption of chromophores. Interpretation of UV-visible spectra. Optical rotatory dispersion and circular dichroism. The interpretation of the ORD and CD spectra. Infrared spectroscopy. IR spectra of organic compounds. Interpretation of IR spectra. Raman spectroscopy. Fundamentals of nuclear magnetic resonance. Experimental methods. Proton NMR. Dynamic NMR. Carbon-13 NMR. Nuclear Overhauser effect. Correlation spectroscopy. Mass spectroscopy. Ionization methods. Fragmentation in mass spectrometry. Interpretation of mass spectra. Structure determination strategies of organic compounds using combined spectra. <i>Practical instruction</i> Determination of the structure of organic compounds on the basis of UV-visible, ORD and CD, IR, proton NMR, and carbon-13 NMR spectra. Understanding the structure of organic compounds on the basis of two-dimensional spectra (¹ H, ¹ H-COSY, HETCOR, HMBC, HSQC, TOCSY, and ROESY).				
Weekly teaching load				Other:
Lectures: 2	Exercises: 2	Other forms of teaching: 1	Student research:	