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| **Study program:** Doctoral academic studies **-** Chemistry |
| **Course title:** Two-Dimensional Nuclear Magnetic Resonance (2D NMR) (H309C) |
| **Name of lecturer/lecturers:** Niko S. Radulović |
| **Type of course:** elective |
| **Number of ECTS allocated:** 10 |
| **Course objectives**Acquaintance PhD students, whom nuclear magnetic resonance will be the basic source of structural information, with work on an NMR spectrometer. |
| **Course outcomes**The PhD student will master basic one-dimensional and two-dimensional techniques. The student will be able to work independently on an NMR spectrometer. |
| **SYLLABUS***Lectures*Components of the spectrometer. Sample preparation. Tuning. Locating. Shimming.Basic one-dimensional experiments.Pulse sequences, preparation and acquisition, processing of spectra, post-processing, interpretation of spectra, possible problems and most common errors for the following:1. 13C experiments for the determination of multiplets: DEPT and APT2. COZY experiment3. TOCSY experiment4. NOESY experiment5. ROESY experiment6. HMQC experiment7. HMBC experiment8. HSQC experiment |
| **References**1. Tim Claridge, High-Resolution NMR Techniques in Organic Chemistry, Volume 2, Elsevier (2009) [ISBN 978-0-08-054818-0]. (Volume 27 of the Tetrahedron Organic Chemistry Series).2. Crews, Rodriguez, & Jaspars: Organic Structure Analysis, Second Edition, Oxford University Press (2010) [ISBN 978-0-19-533604-7].3. Jeffrey H. Simpson: Organic Structure Determination Using 2-D NMR Spectroscopy (Elsevier, 2008) [ISBN 978-0-12-088522-0] |
| **Active teaching classes** | **Lectures:** 105 | **Laboratory work:** / |
| **Teaching mode:** interactive lectures, homework, seminar, panel discussions |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** |
| written exams - 40 points; presentation of homework - 30 points; practical exam - 30 points |