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| **Study program** Chemistry | | | | |
| **Course title** Nomenclature of organic compounds | | | | |
| **Name of lecturer/lecturers** Marija S. Genčić | | | | |
| **Type of course** Elective | | | | |
| **Number of ECTS allocated** 4 | | | | |
| **Course objectives**  Introducing students to the basic principles of nomenclature systems and rule sets used for nomenclature. | | | | |
| **Course outcomes**  Upon successful completion of this course, the student is able to:  - choose the most appropriate nomenclature type for naming complex polyfunctional organic compounds,  - based on the name, write the corresponding structural formula of the compound. | | | | |
| **SYLLABUS**  *Lectures*  General principles of IUPAC nomenclature. System, trivial and semi-trivial names. Types of nomenclature systems: substitution nomenclature, functional nomenclature, additive nomenclature, subtractive nomenclature, conjunctive nomenclature, replacement nomenclature and nomenclature of identical unit. Free radicals, ions and radical-ions. Basic systems: hydrocarbons (acyclic, monocyclic, condensed polycyclic, bridged hydrocarbons, spiro hydrocarbons, fused cyclic, cyclic with side chain and terpenic compounds) and basic heterocyclic systems (heterocyclic nomenclature, heterocyclic spiro-compounds, heterocyclic systems). Functional groups containing carbon, hydrogen, oxygen, nitrogen, halogen, sulfur, selenium and/or tellurium: halogen derivatives, alcohols, phenols and derivatives, aldehydes, ketones and derivatives, carboxylic acids and their derivatives, compounds with divalent sulfur, sulfur halides, sulfoxides, sulfones, sulfur acids and their derivatives, compounds containing selenium or tellurium attached to an organic radical, functional groups containing one nitrogen atom and/or more than one nitrogen atom. Organic compounds containing elements that are not exclusively carbon, hydrogen, oxygen, nitrogen, halogen, sulfur, selenium and/or tellurium: organometallic compounds, organic compounds containing phosphorus, arsenic, antimony or bismuth, organosilicon compounds, organoboron compounds. Stereochemistry: types of isomerism, *cis*-*trans* isomerism, systems with fused rings, chirality, conformations and stereo formulas. General principles for naming natural and related products compounds. Basic structures (carbohydrates, steroids, alkaloids, terpenes, amino acids and peptides). Isotopically labeled compounds: names, symbols, definitions, and formulas. Position designation for nuclides in isotopically labeled compounds.  *Practical work*  Naming polyfunctional compounds. Writing the appropriate formulas of organic compounds based on their names. Comparison of nomenclature types. Trivial names. Naming organic compounds using the appropriate software. Nomenclature and databases of chemical data. | | | | |
| **References**  IUPAC, Nomenclature of Organic Chemistry, Sections A, B, C, D, E, F, G and H, Pergamon press, Oxford, United  Kingdom, 1979.  P. D. Blagojević, N. S. Radulović, Nomenklatura organskih jedinjenja, Prirodno-matematički fakultet, Niš, 2015. | | | | |
| **Active teaching classes** | **Lectures** 30 | | **Laboratory work** 15 | |
| **Teaching mode** lectures, theoretical exercises, consultations | | | | |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** | | | | |
| **Pre exam duties** | **Points** | **Final exam** | | **Points** |
| Activity during lectures | 10 | Written examination | | 50 |
| Practical teaching | 10 | Oral examination | |  |
| Teaching colloquia | 20 |  | |  |
| Homework | 10 |  | |  |