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| **Study program:** Bachelor studies Chemistry |
| **Course title:** Organic chemistry in phenomena around us (H136C) |
| **Name of lecturer/lecturers:** Marija C. Genčić |
| **Type of course:** elective |
| **Number of ECTS allocated: 4** |
| **Course objectives**The goal of the course is to direct the students to a "chemical" way of thinking by offering them a methodology that would allow them to understand that chemistry is not only "in a glass". Connecting the basic principles and knowledge of organic chemistry with concrete everyday observations should enable the explanation of a large number of phenomena in the world around us. |
| **Course outcomes**Upon successful completion of this course, students are able to: - not to memorize chemical facts, but to understand and connect them, - see the world around them as a big reaction vessel due to the acquired interesting and very applicable knowledge in organic chemistry,- give explanations (pose hypotheses) about the phenomena around them by drawing their knowledge of organic chemistry. |
| **SYLLABUS***Lectures*Why not just learn chemical facts but also understand them? Reasoning from chemical evidence: understanding evidence and setting up evidence. Critic review of the text. Making conclusions. Following the quote. Napoleon's Button - 17 Molecules That Changed the Course of History: Spice Chemistry, Ascorbic Acid, Glucose, Cellulose, Nitro Compounds, Silk and Nylon, Phenol, Isoprene, Dyes, "Pills", Witch Molecules, Miracle Medicines, Morphine, Nicotine and Caffeine, antimalarial molecules, oleic acid, and halogenated compounds. Previously prepared panel discussions on the topic of a specific phenomenon: Why do we cry when chopping onions? How does soap wash? Why are clothes crowded? How do insects communicate? How do sunscreens protect us? Does sweat smell bad? Commercial milk and lactose intolerance; Chemistry in the hairdressing salon; At the crime scene; Don't drink when you drive! Why is smoking harmful to our health? Carrots and good eyesight - myth or truth? Antibiotic overuse and bacterial resistance.*Practical teaching*Theoretical exercises that follow the teaching of the course, and are based on the problem-solving approach - learning through solving problems-tasks. Demonstration laboratory exercises that also follow the teaching of the subject, and aim to experimentally reveal the phenomenon: What is the difference between natural and artificial vanilla aroma? Which is sweeter: glucose or fructose? How do bleaches remove stains from clothes? How do sunscreens protect us? Is viscose a natural, synthetic, or man-made fiber? |
| **References**1. J. Garratt, T. Overton, T. Threlfall, A question of chemistry: critical problems for creative thinkers, Pearson Education Ltd., England, 1999.
2. Ж. Чековић (Ед.), Хемијска читанка, Завод за уџбенике и наставна средства, Београд, 2001.
3. Ж. Чековић, Употреба молекула: хемијски есеји о молекулима и њиховим применама, Завод за уџбенике, Београд, 2012.
4. P. Le Couteur, J. Burreson, Napoleon's buttons: How 17 molecules changed history, Jeremy P. Tarcher, New York, 2004.
5. D. Klein, Organic chemistry, 1st edition, John Wiley & Sons, Hoboken, New Jersey, 2011.
6. C. H. Snyder, The extraordinary chemistry of ordinary things (4th Еdition), John Wiley & Sons, Hoboken, New Jersey, 2002.
7. C. Cobb, M. L. Fetterolf, The joy of chemistry: The amazing science of familiar things, Prometheus, Amherst, New York, 2010.
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| **Active teaching classes** | **Lectures 30** | **Laboratory work 15** |
| **Teaching mode:** lectures, interactive teaching, theoretical exercises, demonstrations, seminars, 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 |  |
| Homework | 10 |  |  |
| Seminar | 20 |  |  |