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| **Subject**   | **ORGANIC CHEMISTRY**   |
| **Type**   | **Semester**  | **ECTS**  | **Cod**  |
| **O**   | **2**  | **4 (2+2)**  |  130OCH151 |
| **Course Lecturet**  | **Prof. Dr. Suzana Aliu/ Prof. Asoc. Dr. Hyrije Koraqi** |
| **Course Assistant**  |  |
| **Course Tutor**  |   |
| **Aims and Objectives**  | The subject of organic chemistry will enable students to gain general knowledge about the structure and properties of organic compounds, to name organic compounds according to the JUPAC Nomenclature, to distinguish alkanes (structure, production and reactions), alkyl halides (structure , production and reactions), organometallic compounds, alkenes (structure, production and reactions), stereochemistry, alkynes (structure, production and reactions), dienes (structure, production and reactions), alicyclic hydrocarbons (structure, production and reactions) and aromatic hydrocarbons (structure, production and reactions). It will also enable students to distinguish organic compounds based on functional groups such as alcohols, phenols, aldehydes, ketones, carboxylic acids, amines, as well as biocompounds: lipids, waxes, soaps, carbon hydrates , amino acids (peptide bond) and proteins.  ***Laboratory experiments related to the above topics will include laboratory techniques, synthesis and spectroscopic characterization of organic compounds.***    |
| **Learning outcomes**    |  ***After completing this course (subject), the student will be able to:***  In organic chemistry, to get knowledge about the preferred material and literature, isomers, classification of organic compounds, Hydrocarbons (alkanes, alkenes, alkynes, dienes), alicyclic compounds, alkyl halides, Grinard's reagents, organic compounds that possess oxygen (alcohols and phenols, ethers, aldehydes and ketones, organic compounds that have oxygen in their nucleus (carboxylic acids), derivatives of carboxylic acids, carbon hydrates, amines, lipids, amino acids and proteins, recapitulation of all matter from organic chemistry and exam preparation.     |
| **Alignment of Course’s Learning Outcomes to Programs Learning Outcomes.**    | 1. **Application of theoretical knowledge:**
* Know how to distinguish different classes of organic compounds.
* I understand the structure and reactivity of organic compounds.
* Distinguish organic compounds based on functional groups.
* Determine the nomenclature of different classes of organic compounds, especially knowing how to name organic compounds according to JUPAC Nomenclature, but also names according to other nomenclature (ordinary or trivial).
* Familiar with the basic concepts of chemical reactions such as: substitution, addition, elimination and rearrangement reactions, etc.

 **2. Development of practical skills** * To classify organic compounds, based on their composition.
* To address and solve problems related to the determination of organic compounds in food products.
* Evaluate how and under what conditions I can obtain a certain class of organic compounds.
* Acquire knowledge on the separation and purification of organic compounds.

 ***Engage in continuous learning, staying up-to-date with your knowledge in order to easily face the latest challenges and innovations in the field of organic chemistry science, such as the unique and important entry level food science.***     |
| **Content**  | ***Content of Lectures/Weekly Plan***   | ***Week***  |
| Introduction: Hydrocarbons - Alkanes, meaning, homologous series, emersion, benefit, reactions of alkanes.   | 1  |
| Alkyl halides, Organometallic compounds, Grinjard's reagents, Alkenes and dienes.   | 2  |
| Alkynes, acetylides, alicyclic compounds, cycloalkanes and cycloalkenes, Diels Alder reaction.   | 3  |
| Aromatic hydrocarbons, Benzene and benzene derivatives   | 4  |
| Arenes, meaning, naming, benefit, reactions of arenes.   | 5  |
| Heterocyclic compounds, classification, naming, five-membered heterocycles: pyrrole, furan and thiophene. Six-membered heterocycles: pyridine   | 6  |
| Organic compounds containing oxygen - Alcohols and phenols, naming, beneficiation and reactions of alcohols and phenols.   | 7  |
| Aldehydes and ketones, emersion, yield and reactions of aldehydes and ketones   | 8  |
| Carboxylic acids: their production, utilization and reactions – halides of organic acids, amides, anhydrides and esters of organic acids.   | 9  |
| Organic compounds containing nitrogen and biocompounds.  amines   | 10  |
| High organic acids, lipids: classification, waxes and soaps and detergentes      | 11  |
| Carbohydrates: classification, naming. Monosaccharides, disaccharides and polysaccharides, glycosidic linkage. Optical activity. Enantiomers.    | 12  |
| Amino acids, classification, naming. Proteins, Peptide bond, isoelectric point.   | 13   |
| Presentation of case studies  | 14  |
|   | Final assesment  | 15  |
| **Literature/References**  | * Suzana Aliu, Gani Kastrati, Fidan Feka , Bazat e kimise organike, per   studentet e shkencave te ushqimit, studentet e inxhinjerise se agrokultures dhe mjedisit, studentet e farmacise, 2022, UBT - Prishtine
* Nexhat  Daci, Kimia Organike, fourth edition, Libri Shkollor, 2009, Prishtinë
* Wiley Brand, Organic Chemistry 2nd edition, John Wileyand Sons, 2014, New Jersey.
* Francis A. Carey, Organic Chemistry, Mc Graw Hill, NewYork, 2006.
* Kaplan Test Prep MCAT *Organic Chemistry* Review 2023-2024, ISBN 9781506283074, July 5, *2022*.   link: [*https://www.amazon.com/MCAT-Organic-Chemistry-Review-2023-2024-dp-1506283071/dp/1506283071/ref=dp\_ob\_title\_bk*](https://www.amazon.com/MCAT-Organic-Chemistry-Review-2023-2024-dp-1506283071/dp/1506283071/ref%3Ddp_ob_title_bk)

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