



ORGANIC CHEMISTRY (SURNAMES L-Z)

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| Enrollment year | 2021/2022 |
| Academic year | 2021/2022 |
| Regulations | DM270 |
| Academic discipline | CHIM/06 (ORGANIC CHEMISTRY) |
| Department | DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY "LAZZARO SPALLANZANI" |
| Course | BIOLOGICAL SCIENCES |
| Curriculum | PERCORSO COMUNE |
| Year of study | 1° |
| Period | (01/03/2022 - 14/06/2022) |
| ECTS | 6 |
| Lesson hours | 48 lesson hours |
| Language | Italian |
| Activity type | WRITTEN TEST |
| Teacher | PROTTI STEFANO - 6 ECTS |
| Prerequisites | preliminary knowledge of general and inorganic chemistry |
| Learning outcomes | The course aims to provide biologists with the background for understanding the structures and reactivity of organic and bioactive compounds. The chemistry of the main classes of organic compounds is investigated during the present course: alkanes, alkenes, alkynes, alkyl halides, alcohols, ethers, aromatic compounds, aldehydes, ketones, amines, carboxylic acids and their derivatives. |
| Course contents | The program is outlined as follows: <ol style="list-style-type: none">1. Covalent bond and geometry of chemical bonds. Hybridization, resonance structures.2. Acids and bases3. Alkanes and cycloalkanes, nomenclature and reactivity4. Chirality. Definition, methods of representation and classification of |

chiral molecules.

5. Alkyl halides. Nucleophilic substitution and elimination reaction.

6. Alkenes and alkynes, nomenclature and reactivity. Electrophilic addition reactions, oxidation of alkenes, catalytic hydrogenation.

7. Aromatic compounds, nomenclature and reactivity. Aromatic electrophilic substitution reactions.

8. Aromatic and aliphatic amines.

9. Aldehydes and ketones. Nomenclature and reactivity. Nucleophilic addition reactions, reductions, imine synthesis.

10. Carboxylic acids and their derivatives.

11. Enolate anions. Aldolic and Claisen condensation reactions.

12. Carbohydrates. Classification and traditional nomenclature.

13. Lipids and fatty acids.

14. Amino acids and proteins

15. Nucleic acids.

The course is implemented by theoretical exercises.

Teaching methods

25 Lessons (frontal teaching)
10 Seminars on specific topics.

Reccomended or required readings

-Introduzione alla chimica organica, W. Brown
- Elementi di Chimica Organica, P. Bruice

Assessment methods

3 In itinere written tests carried out on a regular basis during the course.
In alternative:
Written test on the entire program covered by the course.

Further information

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Sustainable development goals - Agenda 2030

[The goals](#)