Bioorganic Chemistry
Academic plan of laboratory practical classes for students of FS faculty
II semester of 2019-2020 st.year

1. Introduction. Spatial structure of organic molecules (configurations and conformations). Principles & rules of chemical nomenclature.
2. Stereoisomerism, its importance for biological activity of organic compounds.
3. Electronic structure of chemical bonds and influence of atoms in organic molecules.
4. Reactions mechanisms in Organic chemistry. Reactive ability of aliphatic hydrocarbons (S_R and A_E reactions).
5. Reactions mechanisms in Organic chemistry. The reactive ability of aromatic hydrocarbons (S_E reactions).
6. Acid-base properties of organic compounds. Reactions of oxidation.
7. Nucleophilic substitution (S_N) on saturated carbon atom.
8. Biologically important reactions of carbonyl compounds (aldehydes and ketones) (A_N reactions).
9. Carboxylic acids & their functional related compounds.
10. Saponifiable (hydrolysable) lipids. The structure of biological membranes.
11. Heterofunctional aliphatic compounds — components of metabolic processes. Structure & reactivity of hydroxy-, oxo-, and amino acids. Stereochemistry.
12. Biologically active heterocyclic aromatic & heterocyclic compounds, metabolites, and bioregulators.
13. Carbohydrates. Monosaccharides.
14. Oligo- and polysaccharides.
15. Amino acids.
16. Peptides, structure, properties, biological importance. Levels of protein molecules organization. Structure and function of hemoglobin.
17. Purine and pyrimidine bases. Nucleosides. Nucleotides. The influence of environmental factors on the structural components of nucleic acids.
18. Physiologically active heterofunctional benzene-related compounds and derivatives.

Head of General and Bioorganic Chemistry Dept.

Associate Professor V.V. Boltromeyuk