The schedule of lectures and practical lessons for Molecular biology

Study program **Pharmacy,** academic year 2024-2025

Lectures	Hours	Dates	Practical classes	Hours
Subject of Molecular Biology Macromolecules. Structure, properties and functions of nucleic acids.	2	03.02. - 07.02.	Biological systems. Methods of study in biology. Macromolecules. Their interactions and functions in biological systems.	2
Interactions and functions of macromolecules in biological systems.	2	10.02. - 14.02.	Nucleic acids - structure, properties, functions.	2
Cell signaling. Receptor-drug interaction	2	17.02. - 21.02.	Biological membranes. Plasmalemma. Internal membranes. Membrane transport. Cellular contacts.	2
Compartmentalization of the eukaryotic cell. Traffic of macromolecules in the cell.	2	24.02. - 28.02.	Compartmentalization of the eukaryotic cell. Membrane organelles - structure, main functions. Membrane biogenesis. Cytoskeleton.	2
Localization and organization of DNA in the eukaryotic cell. The peculiarities of prokaryotic cell structure.	2	03.03. - 07.03.	Nucleus. Molecular organization. Nucleolus. Ribosome biogenesis.	2
Gene structure and functions.	2	10.03. - 14.03.	Interaction of macromolecules in the cell. **Concluding test I.**	2
Transcription of genetic material.	2	17.03. - 21.03.	Structure and functions of genes in prokaryotes and eukaryotes. Coding, regulatory and modulatory sequences.	2
Translation. Genetic code. Control of gene expression.	2	24.03. - 28.03.	Transcription. Transcriptional apparatus. Features of transcription in pro- and eukaryotes. RNA processing.	2
DNA replication and repair. Replication patterns in different organisms.	2	31.03. - 04.04.	Translation. Genetic code. The translation apparatus. Regulation of translation	2
Gene mutations. Spontaneous mutations and induced mutations. Phenotypic consequences of gene mutations.	2	07.04. - 11.04.	DNA replication. DNA repair.	2
Recombinant DNA technology. Biotechnological principles for creating modern medicines.	2	14.04. - 18.04.	Control of gene expression. **Concluding test II.**	2
Methods for studying nucleic acids.	2	29.04. - 02.05.	Recombinant DNA technology. Methods for studying nucleic acids. Biotechnological principles for the creation of modern medicines.	2
Cell cycle. Cell cycle regulation. Cytostatic / mitogenic action of some drugs. Apoptosis.	2	05.05. - 09.05.	Cell cycle. Interface. Mitosis. Apoptosis.	2
Meiosis. Genetic recombination.	2	12.05. - 16.05.	Meiosis. Molecular mechanisms. Biological role of meiosis. Genetic recombination.	2
Pharmacogenetics fundamentals. Biotechnological principles for the creation of modern medicines.	2	19.05. - 23.05.	Pharmacogenetics fundamentals. **Concluding test III.**	2
Total	30		**Total**	30

13.01.2025

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