

**Thematic plan of seminar-type classes
in discipline «Biology»
for students of 2025 year of admission
under the educational programme
31.05.02 Dentistry,
specialisation Dentistry
(Specialist's),
form of study full-time
for the 2025-2026 academic year**

№	Thematic blocks	Practical training within the framework of thematic block ³	Hours (academic) ⁴
1 semester			
1.	Structure and function of genetic material ¹ . Multilevel organization of the genome. Structure, types and functions DNA. DNA replication. ²	-	4
2.	Gene expression during protein biosynthesis. ¹ Transcription. Processing and splicing. Genetic code. Translation. ² Regulation of gene activity. ¹ Operon model. Multilevel regulation of gene activity in eukaryotes. ²	PP	4
3.	Prokaryotes and eukaryotes. Modern methods of microscopy. Light microscopy. Cell cycle. Mitotic cycle ¹ . Regulation of the cell cycle. Medical aspects. ²	PP	4
4.	Reproduction of organisms ¹ . Asexual and sexual reproduction. Gametogenesis. Meiosis. Parthenogenesis. Gynogenesis. Androgenesis. ²	PP	4
5.	Ontogenesis. ¹ General patterns of the embryonic period of animals and humans. Critical periods. ² Postembryonic period of human ontogenesis. ¹ Growth. Aging. Theories of aging. ²	PP	4
6.	Basic patterns of inheritance. ¹ Interaction of allelic and nonallelic genes. ²	PP	4
7.	Genetics of sex. ¹ Chromosomal determination of sex. Inheritance of sex-linked traits. ² Linked inheritance. ¹ Chromosomal theory of heredity. ²	PP	4
8.	Variability ¹ . Recombination. Modifications. Mutational variability. Spontaneous and induced mutagenesis. ² Reparation of genetic material. ¹ Genome editing. ²	PP	4
9.	Fundamentals of medical genetics. ¹ Methods of genetic research. Cytogenetic, molecular cytogenetic methods. Medical genetic counseling. Prenatal diagnostics. ²	PP	4
10.	Testing knowledge and skills on the topics: "Molecular-genetic, cellular and organismic levels of life organization." ¹	PP	4
11.	Patterns and mechanisms of biological evolution. ¹ The concept of micro- and macroevolution. The concept of population genetics. Characteristics of human populations. The action of elementary evolutionary factors in human populations.	PP	4

	Population-statistical method. ²		
12.	Medical and biological aspects of ecology. ¹ Subject of human ecology. ¹	-	4
13.	Medical-biological and ecological bases of parasitism. ¹ Organization and biology of Protozoa. ¹ Representatives of the Sarcomastigophora and Apicomplexa types pathogenic for humans. ²	PP	4
14.	Organization and biology of Flatworms. ¹ Flukes. Medical significance. ² Organization and biology of Flatworms. ¹ Tapeworms. Medical importance. ²	PP	4
15.	Organization and biology of Roundworms. ¹ Geohelminths. Medical importance. ² Organization and biology of Roundworms. ¹ Biohelminths. Medical importance. ²	PP	4
16.	Organization and biology of Arthropods. ¹ Arachnids (scorpions, spiders, ticks). Medical importance. ² Organization and biology of Arthropods. ¹ Insects (lice, fleas, mosquitoes, flies, midges, gadflies, horseflies). Medical significance. ²	PP	4
17.	Control of knowledge and skills on the topic: "Fundamentals of medical parasitology. Medical protozoology. Medical helminthology. Medical arachnoentomology". ¹	PP	4
18.	Modern concepts of the biosphere. ¹ Structure and functions of the biosphere. Evolution of the biosphere. The doctrine of the noosphere. ²	PP	4
		Total	72

¹ – topic

² – essential content

³ - practice

⁴ – one thematic block includes several classes, the duration of one class is 45 minutes, with a break between classes of at least 5 minutes

Considered at the Biology department meeting, protocol of «20» May 2025 r. № 17

Head of the Department

G.L. Snigur

