Thematic plan of seminar-type classes
in discipline « Microbiology, virology »
for students of 2024 year of admission
under the educational programme
31.05.01 General Medicine,
specialisation (profile) General Medicine
(Specialist's),
form of study full-time
for the 2025-2026 academic year

№	Thematic blocks	Hours (academic) [3]
	3rd semester	
1.	Introduction to General Microbiology.[1] Microbiological Laboratories and Their Equipment. Safety Rules for Working in a Microbiological Laboratory. Bacterial Morphology. Microscopic Research Method. Simple Staining Methods.[2]	2
2.	Ultrastructure and Chemical Composition of a Bacterial Cell.[1] Structural Components of a Microbial Cell. Microscopic Research Method. Complex Staining Methods.[2]	2
3.	Features of the Morphology and Structure of Prokaryotic and Eukaryotic Microorganisms.[1] Borderline Forms of Prokaryotic Microorganisms: Morphology and Structure of Fungi, Actinomycetes, Spirochetes, Rickettsia, Chlamydia, Mycoplasmas. Methods for Their Study.[2]	2
4.	Physiology of Microorganisms.[1] Nutrition and Respiration of Bacteria. Nutrient Media. Bacteriological Research Method and Its Stages. Isolation of Pure Cultures of Aerobes and Anaerobes.[2]	2
5.	Physiology of Microorganisms (continued).[1] Bacterial Enzymes. Biochemical identification of microorganisms. Bacteriological method of research, its stages (continued). [2]	2
6.	The study of viruses.[1] Morphology and physiology of viruses. Methods of their cultivation.[2]	2
7.	**Concluding on the topics: "Morphology and physiology of microorganisms. General virology". [1] Conversation on the questions covered. [2]**	2
8.	Genetics of microorganisms.[1] Organization of genetic material in bacteria. Genetic variability of microorganisms. Molecular genetic research method.[2]	2
9.	Sanitary microbiology.[1] Microflora of water, air, soil. Sanitary indicator microorganisms. Normal microflora of the human body, its importance.[2]	2
10.	Effect of environmental factors on microorganisms.[1] Effect of physical and chemical factors. Sterilization and disinfection. Asepsis and antisepsis.[2]	2
11.	Effect of biological factors on microorganisms.[1] The doctrine of antibiotics: classification, mechanism of action. Determination of sensitivity to antibiotics. Complications of antibiotic therapy and their prevention.[2]	2
12.	**Concluding on the topics covered: "Genetics of microorganisms. Ecology of microorganisms and sanitary microbiology. The influence of environmental factors on microorganisms. Asepsis, antisepsis, disinfection, sterilization. The doctrine of antibiotics." [1] Conversation**	2

	on the topics covered. [2]	
13.	The doctrine of infection.[1] Forms of infection, conditions for the development of the infectious process. Pathogenicity and virulence of microorganisms. Characteristics of bacterial toxins. Biological research method.[2]	2
14.	The doctrine of immunity.[1] Types and forms of immunity. Innate immunity. Factors and mechanisms of non-specific anti-infective defense of the body (anatomical and physiological mechanisms, humoral and cellular factors).[2]	2
15.	Adaptive immunity.[1] The human immune system. Antigens. Antibodies. Antigens of microorganisms and viruses. Interaction of antigens with antibodies. Serological research method.[2]	2
16	Seroidentification and serodiagnosis of infectious diseases.[1] Serological research method (continued). Immunobiological preparations: vaccines, serums. Preparation and purpose.[2] **Concluding on the topics covered: "The doctrine of infection. The doctrine of immunity." [1] Conversation on the issues covered.[2]**	2
	4th semester	
17	Introduction to private medical microbiology. Diagnostic methods for infectious diseases. General characteristics of acute intestinal infections and pathogens of bacterial intestinal infections.[1] Escherichia coli pathogens - taxonomy, morphology, cultivation, biochemical properties, antigenic structure, pathogenicity factors, epidemiology and pathogenesis of diseases, diagnostic methods, specific and non-specific therapy and prevention.[2]	2
18	Typhoid and paratyphoid salmonella A and B and pathogens of salmonellosis. Shigella, pathogens of dysentery.[1] Taxonomy, morphology, cultivation, biochemical properties, antigenic structure, pathogenicity factors of pathogens, epidemiology and pathogenesis of diseases, diagnostic methods, specific and non-specific therapy and prevention.[2]	2
19	Microorganisms, pathogens of cholera.[1] Taxonomy, morphology, cultivation, biochemical properties, antigen structure, pathogenicity factors, epidemiology and pathogenesis of diseases, diagnostic methods, specific and non-specific therapy and prevention.[2]	2
20	**Concluding on the topics covered: "Pathogens of acute intestinal infections".[1] Conversation on the topics covered.[2]**	2
21	Pathogenic cocci.[1] Pathogenic gram-positive cocci - staphylococci, streptococci, pneumococci. Pathogenic gram-negative cocci - meningococci and gonococci. Taxonomy, morphology, cultivation, biochemical properties, antigen structure, pathogenicity factors, epidemiology and pathogenesis of diseases, diagnostic methods, specific and non-specific therapy and prevention.[2]	2
22	Pathogens of bacterial airborne infections.[1] Pathogens of diphtheria and whooping cough. Corynebacteria and Bordetella – taxonomy, morphology, cultivation, biochemical properties, antigen structure, pathogenicity factors, epidemiology and pathogenesis of diseases, diagnostic methods, specific and non-specific therapy and prevention.[2]	2
23	Pathogenic mycobacteria.[1] Causative agents of tuberculosis and leprosy – taxonomy, morphology, cultivation, biochemical properties, antigen structure, pathogenicity factors, epidemiology and pathogenesis of diseases, diagnostic methods, specific and non-specific therapy and prevention.[2]	2

24	**Concluding on the topics: "Pathogenic cocci. Microorganisms, causative agents of airborne infections." [1] Conversation on the questions covered. [2]**	2
25	Particularly dangerous zoonotic infections.[1] Plague, anthrax, tularemia and brucellosis pathogens – taxonomy, morphology, cultivation, biochemical properties, antigen structure, pathogenicity factors, epidemiology and pathogenesis of diseases, diagnostic methods, specific and non-specific therapy and prevention.[2]	2
26	Anaerobic infection pathogens: tetanus, botulism, gas gangrene.[1] Clostridia – taxonomy, morphology, cultivation, biochemical properties, antigen structure, pathogenicity factors, epidemiology and pathogenesis of diseases, diagnostic methods, specific and non-specific therapy and prevention.[2]	2
27	Microorganisms, causative agents of spirochetosis: syphilis, leptospirosis, borreliosis.[1] Leptospira, borrelia, treponema – taxonomy, morphology, cultivation, biochemical properties, antigen structure, pathogenicity factors, epidemiology and pathogenesis of diseases, diagnostic methods, specific and non-specific therapy and prevention.[2]	2
28	**Concluding on the topics covered: "Microorganisms, causative agents of especially dangerous infections. Pathogenic anaerobes. Microorganisms, causative agents of spirochetosis."[1] Conversation on the questions covered.[2]**	2
28	Viruses - causative agents of human infectious diseases.[1] Virological research method. Causal agents of acute respiratory viral infections (ARVI). Viruses, causative agents of influenza, parainfluenza, respiratory sentinel virus, coronaviruses, adnexoviruses and other causative agents of acute respiratory viral infections, measles, rubella, mumps virus - taxonomy, morphology, cultivation, antigenic structure, epidemiology and pathogenesis of diseases, diagnostic methods, specific and non-specific therapy and prevention. Herpesvirus family.[2]	2
30	Neuroviruses, causative agents of poliomyelitis, tick-borne encephalitis and rabies.[1] Taxonomy, morphology, cultivation, antigenic structure of pathogens, epidemiology and pathogenesis of diseases, diagnostic methods, specific and non-specific therapy and prevention. Viruses, causative agents of enterovirus infections: Coxsackie and ECHO viruses. Viruses, causative agents of viral hepatitis.[2]	2
31	Viruses, causative agents of HIV infection.[1] Taxonomy, morphology, cultivation, antigen structure of pathogens, epidemiology and pathogenesis of diseases, diagnostic methods, specific and non-specific therapy and prevention. Oncogenic viruses.[2] **Concluding on the topics covered: "Special virology."[1] Conversation on the questions covered.[2]**	2
	Total	**62**

[1] – topic

[2] – essential content

[3] – 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 department meeting Microbiology,
protocol of 11 June 2025 г. № 12.

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