Plan of practical classes in Microbiology, Virology, Immunology 2025-2026 academic year, Specialty "Dentistry" 3rd semester

Learning Session: from 01.09.2025 to 02.01.2026.

Practical classes begin on 01.09.2024.

- Public holidays: November 7, December 25, January 1 and 2. Classes for these days are not planned, but are shifted a week later (if there are enough training weeks).

LABORATORY CLASS 1	Date: 01.09.2025–05.09.2025

TOPIC: Microbiology as a science. Microbial world. Methods of research in microbiology. Bacterioscopic method. Characteristics of the forms of bacteria. Simple methods of staining.

Suggested reading for self-study:

History of the microbiology, virology, immunology department; main spheres of activity and trends in research.

Design and equipment of microbiological laboratory, biosafety levels. Basic rules of work in microbiological laboratory (biosafety in work with class II biohazards). Universal precautions in work with burners and electric supplies.

Taxonomy of microorganisms: classification and nomenclature. Modern approaches to taxonomy of microorganisms. Taxonomic ranks. Vars (types), strains, clones, pure cultures.

Basic morphological forms of bacteria. Morphological characteristics of cocci, rods and spiral-shaped bacteria.

Microscopic method of examination: tasks, procedure, method evaluation. Bright-field light microscope: components and proper use of the microscope. Smear preparation and fixation. Simple methods of staining. The technique of oil immersion microscopy.

Laboratory work: rules for the work with bacterial cultures. Microscopic method: preparation of smears, simple methods of staining, microscopy, evaluation of basic form of bacteria.

LABORATORY CLASS 2	Date: 08.09.2025–12.09.2025

TOPIC: Bacterioscopic research method. Structure of bacterial cell. Complex staining methods. Features of morphology and methods of studying spirochetes, rickettsia, chlamydia, mycoplasma.

Suggested reading for self-study:

Distinctive features of prokaryotic and eukaryotic cells. Basic bacterial cell structure: components of bacterial cell.

The composition, function, detection methods of bacterial cell wall. Gram stain: medical application, principles, procedure for Gram stain. Bacterial forms with defective cell wall (protoplasts, spheroplasts and L forms): factors inducing cell wall removal, medical importance of L-forms. The composition, function of capsule, flagella, pili (fimbriae) and methods for their detection. Detection of capsule using negative staining. Acid-fast bacteria and unique properties of their cell wall. Ziehl-Neelsen acid-fast staining: medical application, principle, procedure.

The cytoplasmic membrane: structure, function. The most important bacterial cytoplasmic membrane proteins. Bacterial core: cytoplasm, cytoplasmic structures (nucleoid, plasmids, ribosomes, and mesosomes). Inclusion bodies - storage granules (starch, fat, sulfur, polymetaphosphate (volutin)). Methods for nucleoid and volutin detection. Loeffler and Neisser stain for volutin granules.

Resting forms of microorganisms. Bacterial endospores: medical importance, properties of endospore, the periods of endospore formation, detection methods. Spore stain using Ozheshko method: principle, procedure.

Taxonomy, morphology, medical significance of the Spirochetes, Actinomyces, Rickettsiae, Chlamydiae, Mycoplasmas. Romanowsky-Giemsa stain. Dark-field light microscopy. Phase-contrast light microscopy. Fluorescence microscopy.

Laboratory work: Microscopic research method: preparation of smears, Gram staining, microscopy with determination of morphology and tinctorial properties of bacteria.

LABORATORY CLASS 3	Date: 15.09.2025–19.09.2025

TOPIC: Methods of studying bacterial genetics. Methods of molecular diagnostics.

Suggested reading for self-study:

The structure of bacterial genetic apparatus. Regulation of gene expression. General properties and varieties of plasmids. Detection of plasmids.

Bacterial variability: phenotypic and genetic. Practical significance of bacterial variability. Mechanisms of genetic variability: Mutation and recombination. Classification of mutations. Methods of mutant bacteria selection.

Molecular methods: tasks, specimens for investigation, advantages of the methods. Molecular hybridization: test materials, DNA extraction, components of DNA hybridization reaction, molecular probes, detection of DNA hybrid duplexes, interpretation of results. Equipment. Practical application of molecular hybridization method. Polymerase chain reaction (PCR): test materials, principle, DNA extraction, components of PCR reaction mixture, primers, PCR thermal cycle, detection of amplicons, interpretation of results. Equipment for PCR. Practical application of PCR.

Laboratory work: Evaluation of PCR results (detection of amplification products, interpretation of results).

LABORATORY CLASS 4	Date: 22.09.2025–26.09.2025

TOPIC: Cultural (bacteriological) research method. Methods for isolating pure bacterial cultures.

Suggested reading for self-study:

Metabolism and energy exchange in microbes. Constructive and energy metabolism. Types and methods of feeding, nutrient transport through the membrane. Breathing microbes, breathing apparatus, ways of biological oxidation. Aerobic, anaerobic, facultative anaerobes.

Cultivation of microorganisms. Conditions required for growth. Nutrient media for culturing bacteria: classification and characteristics. Culture media ingredients, procedure of preparation and sterilization. General requirements to bacteriologic nutrient media. Incubator.

Bacteriological method of laboratory diagnosis: tasks, procedure, evaluation of the method. Methods of aerobic and anaerobic microorganisms isolation in pure culture. Bacterial colony characteristics.

Laboratory work: 2nd stage of the bacteriological research method (macro- and microscopic study of colonies and accumulation of pure culture).

LABORATORY CLASS 5	Date: 29.09.2025–03.10.2025

TOPIC: Cultural (bacteriological) research method. Methods for identification of pure bacterial cultures.

Suggested reading for self-study:

Identification of microorganisms: approaches and methods. Bacterial species: term definition, species criteria and methods for discovering bacterial species.

Biochemical activities of bacteria and methods for the biochemical properties detection of microorganisms. Enzymes of microorganisms: classification, importance for identification: a) proteolytic (proteases, peptidases, decarboxylases, deaminases, cysteine desulfurase, urease, tryptophanase); b) carbohydrate hydrolyses (carbohydralyses, amylase); c) lipolytic (lipases, lecithinase); d) oxidative- reductive (dehydrohenase, oxidase, catalase); e) hemolysins; α-, β-, γ-, -hemolysis. Rapid multitest systems for microorganisms identification. Automatic bacteriological analyzers: structure and principle of bacterial identification.

Laboratory work: Evaluation of culture purity and biochemical identification of bacteria.

LABORATORY CLASS 6	Date: 06.10.2025–10.10.2025

TOPIC: Antimicrobial measures: methods of sterilization and disinfection, antisepsis, asepsis. Microbial ecology.

Suggested reading for self-study:

Ecology of microorganisms. Interspecific and intraspecific relations. Symbiosis, its variants. Antagonistic microbial relationships, its background and medical importance. Bacteriocins.

Definition of terms asepsis, sterilization, disinfection, antisepsis. Methods of sterilization: physical, chemical, mechanical. Differences between sterilization and disinfection. Types and methods of disinfection. Types and methods of antisepsis. Practical antisepsis. Classification of antiseptics, origin and characteristics of groups. Mechanisms of action on microorganisms. Antimicrobial management in dentistry.

Laboratory work: Experiment on antiseptic treatment of the skin.

LABORATORY CLASS 7	Date: 13.10.2025–17.10.2025

TOPIC: Methods for studying the sensitivity of microbes to antibiotics. Infection. Biological research method.

Suggested reading for self-study:

Sources of antibiotics. Spectrum of action. Chemical classification of antibiotics. Mechanisms of action. Side effects. Principles for rational antimicrobial therapy. The problem of resistance to antimicrobials: definitions (intrinsic, acquired resistance), incidence, significance. Resistance mechanisms: non-genetic and genetic origin of drug resistance. Antibiotic susceptibility testing of microorganisms: methods and principles.

Definition of infection. Classification of infections. Bacterial pathogenicity and virulence. Measurements of virulence: ID50, LD50, DLM. The genetics of bacterial pathogenicity. Pathogenicity islands. Pathogenicity factors: adhesins, invasins, impedins, agressins, modulins. The role of bacterial biofilms. Methods of adhesins, capsule, invasins, toxigenicity detection.

Biological method (application of laboratory animals in microbiology): tasks, phases, evaluation of the method. Animal models for infectious diseases. Routs for animal infection. Ethical, humane and legal considerations involved in the use of laboratory animals.

Laboratory work:

1. Determining the sensitivity / resistance of bacterial cultures to antibiotics
2. Microscopic examination of print smears from organs of laboratory animals with determination of microorganisms morphology.

LABORATORY CLASS 8	Date: 20.10.2025–24.10.2025

TOPIC:Infection. Biological research method.

Definition of infection. Classification of infections. Bacterial pathogenicity and virulence. Measurements of virulence: ID50, LD50, DLM. The genetics of bacterial pathogenicity. Pathogenicity islands. Pathogenicity factors: adhesins, invasins, impedins, agressins, modulins. The role of bacterial biofilms. Methods of adhesins, capsule, invasins, toxigenicity detection.

Biological method (application of laboratory animals in microbiology): tasks, phases, evaluation of the method. Animal models for infectious diseases. Routs for animal infection. Ethical, humane and legal considerations involved in the use of laboratory animals.

Concluding class on the section: "General microbiology".

List of questions:

1. History of microbiology as a science. Periods. The founders of microbiology main routes.
2. Microscopic method of examination: tasks, procedure, evaluation of the method.
3. Bright-field light microscope: components and proper use of the microscope. Dark-field light microscopy: the principle behind dark-field microscopy. Phase-contrast light microscope: basic principles behind phase-contrast microscopy. Fluorescence microscopy: principles behind the fluorescence microscopy. The technique of oil immersion microscopy.
4. Type of microscopic preparations. Smear preparation and fixation. Simple methods of staining.
5. Differential stains of microorganisms. Gram stain: medical application, principles, procedure for Gram stain.
6. Morphology of bacteria. Distinctive features of prokaryotic and eukaryotic cells. Basic morphological forms of bacteria. Morphological characteristics of cocci, rods and spiralshaped bacteria. Motility of bacteria, methods of detection.
7. Structure and function of cell envelope and appendages. Capsule. Detection methods of the capsule.
8. The composition, function, detection methods of bacterial cell wall. The cell wall of grampositive bacteria. The cell wall of gram-negative bacteria. Bacterial forms with defective cell wall. Factors inducing cell wall removal, medical importance of L-forms.
9. Bacterial core: cytoplasm, cytoplasmic structures; their functions and detection methods. Acid-fast bacteria and unique properties of their cell wall. Methods of acid-fast staining: medical application, principle, procedure.
10. Resting forms of microorganisms. Bacterial endospores: medical importance, properties of endospore, the periods of endospore formation, detection methods (principles, procedures).
11. Taxonomy of microorganisms: classification and nomenclature. Modern approaches to taxonomy of microorganisms. Taxonomic ranks. Vars (types), strains, clones, pure cultures.
12. Taxonomy, morphology, medical significance of the spirochetes. Methods for spirochetes detection.
13. Taxonomy, morphology, medical significance of Actinomyces.
14. Taxonomy, morphology, medical significance of Mycoplasmas. Methods for Mycoplasmas

investigations.

15. Taxonomy, morphology, medical significance of Chlamydiae and Rickettsiacea.

16. Nutrition of microorganisms. Source of macro- and micronutrients, growth factors. Nutritional types. Transport mechanisms for nutrient absorption.

17. Energy strategies in microorganisms. Aerobic and anaerobic respiration. Structures involved in respiration in microorganisms.

18. Reproduction of microorganisms. Mechanisms and phases of bacterial division.

19. Bacteriological method of laboratory diagnosis: tasks, procedure, evaluation of the method.

20. Cultivation of microorganisms. Conditions required for growth. Nutrient media for culturing bacteria: classification and characteristics. Culture media ingredients, procedure of preparation and sterilization. General requirements to bacteriologic nutrient media.

21. Methods of aerobic microorganisms isolation in pure culture.

22. Methods of anaerobic microorganisms isolation in pure culture. Cultivation of anaerobic bacteria: culture media, techniques, equipment.

23. Identification of microorganisms: morphological, cultural, serologic, biological, genetic.

24. Biochemical identification of microorganisms. Detection of: a) proteolytic enzymes; b) carbohydrate hydrolyses enzymes; c) lipolytic enzymes; d) oxidative- reductive enzymes; e) hemolysins. Automatic stations for identification of bacteria.

25. The structure of bacterial genetic apparatus. Phenotype, genotype, genome, genes. Regulation of gene expression. General properties and varieties of plasmids. Detection of plasmids.

26.Bacterial variability: phenotypic and genetic. Practical significance of bacterial variability. Population variability.

27. Molecular methods in diagnosis of infection diseases: aims, methods, advantages. Molecular hybridization and polymerase chain reaction: principles of the methods.

28. Doctrine regarding infections. Terms for emergence of infectious disease. Basic terminology of infectology. Classification of infections.

29.Role of microorganisms in infection emergence. Bacterial pathogenicity and virulence. The genetics of bacterial pathogenicity. Pathogenicity islands. Pathogenicity factors: adhesins, invasins, impedins, agressins, modulins.

30.Role of microorganisms, social and physical factors in infection emergence.

31.Biological method (application of laboratory animals in microbiology): tasks, phases, evaluation of the method.

32.Chemoprophylaxis and chemotherapy; antimicrobial chemotherapeutic agents and antibiotics. Sources of antibiotics. Especially the use of antibiotics in dentistry.

33. Mechanisms of antibiotics action. Side effects of antibiotics. Principles for rational antimicrobial therapy.

34. The problem of resistance to antimicrobials: definitions (intrinsic, acquired resistance), incidence, significance. Resistance mechanisms.

35. Antibiotic susceptibility testing of microorganisms: methods and principles.

36. Ecology of microorganisms. Basic terminology of ecology.

37. Asepsis: definition, surgical, medical asepsis, asepsis in microbiological laboratory.

38. Sterilization: definition, methods of sterilization (physical, chemical, mechanical), quality control.

39. Disinfection: definition, methods of disinfection.

40. Antisepsis: definition, methods of antisepsis. Disinfectant and antiseptics: classification and modes of action.

Practical skills

1. Prepare heat-fixed slide of bacteria, cultured on agar medium, stain with methylene blue.
2. Prepare heat-fixed slides of bacteria, cultured on liquid medium, stain with basic fuchsin.
3. Prepare heat-fixed slides of bacteria, cultured on liquid medium, stain by Gram.
4. Technology immersion microscopy.
5. Determine the morphology of Staphylococcus, pure culture, Gram stain.
6. Determine the morphology of E. coli, pure culture, Gram stain.
7. Determine the morphology of Gram+ and Gram- bacteria into the mix, Gram stain.
8. Determine the morphology of the culture in smear colored by Ginsu-Burri.
9. Define streptobacill pure culture morphology, Gram stain coloring.
10. Determine antibiotic susceptibility of microorganisms by disk diffusion method.
11. Characterize morphology of two different types of colonies present on agar medium.

LABORATORY CLASS 9	Date: 27.10.2025–31.10.2025

TOPIC: Methods of clinical and infection immunology. Methods of studying innate immunity.

Suggested reading for self-study:

Human immune system: organs, cells, molecules (CD; receptors; MHC I, II, III; cytokines, adhesion molecules etc.).

Immunity, types of immunity.

Innate immunity. Immune and not-immune factors. Complement system: composition, way of activation, functions. Methods for estimation of complement system activity.Lysozyme, b-lysins.

Polynuclear and mononuclear phagocytes systems. TOLL-like receptors.

Phagocytosis: phases, intracellular killing mechanisms, outcomes. Dendritic cells. Methods for estimation of phagocytosis.

Natural killer cells.

Antigen-presenting cells.

Laboratory work: Determination of complement activity by 50% hemolysis. Determination of phagocytosis indices in prepared smears.

LABORATORY CLASS 10	Date: 03.11.2025–07.11.2025

TOPIC: Humoral immune response. Antigens. Antibodies.

Suggested reading for self-study:

Immune response, definition, main factors. Antigens: definition, main features, classification. B-lymphocytes system. B cells genesis. B cell receptor (BCR). B-cell activation, proliferation, differentiation to plasmocyte, immunoglobulin production. Humoral immune response. Primary and secondary humoral response. Immunoglobulins: structure, functions. Classes and subclasses of immunoglobulins. Monoclonal immunoglobulins. Methods of B-lymphocytes evaluation: quantitative and functional tests.

LABORATORY CLASS 11	Date: 10.11.2025–14.11.2025

TOPIC: Cellular immune response. Allergy.

Suggested reading for self-study:

T lymphocyte system. T-cell markers. TCR. Genetic control of TCR diversity. T-lymphocytes subpopulations: helpers, killers, DTH-effectors, regulators. T helpers of 1, 2, 3 and 17 types. Cellular immune response and its phenomena. Interaction and control of the immune system. Methods for evaluation of T- and B-lymphocytes system: quantitative and functional tests.

Allergy, periods, types. Immediate type of hypersensitivity mechanisms: mediator type (I), cytotoxic type (II), immune complex type (III). Delayed type of hypersensitivity mechanism (IV). Drug allergy. Allergens in dentistry. Methods for allergic conditions diagnostics.

LABORATORY CLASS 12	Date: 17.11.2025–21.11.2025

TOPIC: Serological research method

Suggested reading for self-study:

Serological method, characteristics. Antibody titre. Diagnostic titre. Diagnosticum. Diagnostic serum.

Agglutination, passive agglutination, reversed passive agglutination, latex agglutination.

Precipitation. Ring precipitation test, double immunodiffusion in a gel (by Ouchterlony), simple radial immunodiffusion in a gel (by Mancini), immunoelectrophoresis, electroimmunodiffusion.

Immune lysis reactions. Immunofluorescence test: direct and indirect variants. Immunochromatographic testImmunoenzyme test. ELISA. Radioimmune test.

Laboratory work: Performance and interpretation of slide agglutination test to identify bacteria; recording the agglutination in tubes test and passive hemagglutination test to determine the antibody titer; recording the results of enzyme immunoassay (filling out the research protocol, assessment of test reliability and results interpretation) for diagnosing viral hepatitis B.

LABORATORY CLASS 13	Date: 24.11.2025–28.11.2025

TOPIC: Immunoprophylaxis and immunotherapy. Immunopathology and clinical immunology.

Suggested reading for self-study:

Immunoprophylaxis and immunotherapy. Vaccines, classification, essential characteristics. Vaccinal immunity, factors affecting its development. Methods of vaccinal immunity evaluation.

Passive immunoprophylaxis. Immune sera and serum preparations; methods of its production and application.

Clinic immunology: definition. Immune status. Immunogram.

Primary and secondary immunodeficiency.

Autoimmune disease. Causes, manifestation. Autoantibodies, diagnostic value, methods of determination. Antitumor immunity. Methods of immune status correction. Immunosuppression. Immunostimulation. Immunomodulators. Thymus, spleen, bone marrow substances. Interleukins, interferons.

Laboratory work: Accounting of serological reactions for assessing the intensity of anti-diphtheria immunity; conduction and accounting of serological reactions for serodiagnosis of autoimmune conditions.

LABORATORY CLASS 14	**Date: 01.12.2025–05.12.2025**

COCLUDING CLASS on the section: "Theoretical and applied medical immunology".

List of questions:

1. Immunology. Definition, tasks, methods. History of immunology.
2. Immune system. Characteristics. Organs, cells, molecules of the immune system.
3. Cytokines. Definition, classification. Biological importance.
4. Immunity: definition, classification. Characteristics of anti-infection immunity.
5. Innate immunity: definition, immune and non-immune factors, characteristics.
6. Complement system: definition, ways of activation, functions. Medical importance. Methods of complement activity evaluation.
7. Phagocytosis. Phagocytes. Phagocytosis phases. Phagocytosis outcome (complete, incomplete). Chemotaxins, opsonins: origin and medical importance.
8. Phagocytosis evaluation methods.
9. Immune response and factors influencing its strength.
10. B-lymphocytes, characteristics, main markers. Humoral immune response, periods.
11. Methods for B-lymphocytes quantity and functional activity evaluation.
12. Antigens: structure, classification, characteristics.
13. Bacteria antigenic structure. Cross-reacting antigens.
14. Antibodies, structure-functional organization of immunoglobulin molecule, characteristics. Antiidiotypic and monoclonal antibodies.
15. Classes of immunoglobulins, characteristics.
16. Mechanisms of antigens and antibodies interactions. Specificity. Phases. Affinity. Avidity.
17. Serology reactions, characteristics. Tasks, periods, clinical importance.
18. Agglutination reaction. Methods of conduction and result registration. Medical importance.
19. Passive hemagglutination, ingredients. Methods of conduction and result registration. Medical importance. Reversed passive agglutination test. Latex agglutination.
20. Precipitation reaction. Methods of conduction and result registration. Medical importance.
21. Immunofluorescence test. Medical importance. Immunochromatographic test.
22. Immunoenzyme analysis. ELISA. Ingredients, methods of conduction, results registration, characteristics. Medical importance.
23. Immune lysis reactions. Hemolysis.
24. Complement fixation test. Ingredients, methods of conduction, results registration, characteristics. Medical importance.
25. T-lymphocytes system, characteristics. Cellular immune response, dynamics.
26. Methods for T-lymphocytes quantity and functional activity evaluation.
27. Allergy: definition, classification. Allergy phases and types.
28. Allergens: definition, classification, characteristics.
29. Allergic reaction of immediate type, clinical phenomena.
30. Mediator type of ITH: definition, mechanisms, clinical phenomena, approaches for prophylaxis.
31. Cytotoxic (II) and immunocomplex (III) ITH types: definitions, mechanisms, clinical phenomena.
32. Hypersensitivity of delayed type (IY): definition, classification, clinical phenomena.
33. Methods for ITH diagnostics (in vivo and in vitro). Methods for DTH diagnostics (in vivo and in vitro).
35. Immune tolerance: definition, mechanisms, medical importance.
36. Transplantation immunity. MHC antigens of I, II, III types, role for an immune response development. Transplantological reactions. Mechanisms of transplant rejection. Prophylaxis.
37. Clinical immunology: definition, aims.
38. Primary and secondary immunodeficiencies: definitions, classification, medical importance.
39. Immune status: definition, methods for evaluation. Influence of life way on the immune system function.
40. Autoimmune diseases, classification. Autoantigens. Mechanisms of autoimmunity.

41. Immunoprophylaxis and immunotherapy of infections. Achievements and problems.
42. Vaccines, main demands. Classification, characteristics, approaches to development. New vaccines.
43. Vaccinal immunity. Factors influencing vaccinal immunity.
44. Passive immunoprophylaxis. Antisera for therapy and prophylaxis, medical importance.
45. Immunocorrection. Methods for suppression and stimulation of the immune response, drugs for immunocorrection.

Practical skills

1. Register the result of agglutination test.
2. Register the result of gel immunoprecipitation test.
3. Register the result of passive hemagglutination test.
4. Perform the slide agglutination test.
5. Determine the immunoglobulins concentration.
6. Determine T-lymphocytes quantity in ready slide by immune rosettes method.
7. Determine phagocytosis indices in ready slides

LABORATORY CLASS 15	Date: 08.12.2025–12.12.2025

TOPIC: Methods of microbiological diagnostics of diseases caused by staphylococci, streptococci, neisseria.

Suggested reading for self-study:

Staphylococci, general characteristics. Pathogenicity factors. Staphylococcal infection, including dentistry. Staphylococci as causative agents of nosocomial infections. Methods of staphylococcal infections microbiological diagnostics. The material for the research depending on the infection form. Scheme of pure culture isolation (from pus, mucus, blood, etc.). Identification methods, phagetyping of Staphylococci. Specific prevention and treatment of staphylococcal infections.

Streptococci, systematics, general characteristics. Antigenic structure. S.pyogenes, S.pneumoniae, S.mutans and other spp of the oral cavity. The role in the health and pathology of the oral cavity. Acute and chronic diseases, pathogenesis, immunity. Methods for streptococcal infections diagnosis. Bacteriological method, study design. Material for studies depending on the form of the infection, the rules and methods for taking material. Principles of therapy and prevention streptococcal infections.

Neisseria. Systematics, general characteristics. The role in the health and pathology of the oral cavity. Meningococcus, gonococcus. Pathogenicity factors. Pathogenesis and immunity. Microbiological diagnostics, material for studies. Specific prevention and treatment.

Laboratory work: Microbiological diagnostics of staphylococcal and streptococcal infections (identification stage)

LABORATORY CLASS 16	Date: 15.12.2025–19.12.2025

TOPIC: Methods of microbiological diagnostics of acute intestinal infections caused by enterobacteria. Principles of diagnostics of food poisoning.

Suggested reading for self-study:

General characteristics of Enterobacteriaceae family.

Escherichia, general characteristics. The biological role of Escherichia coli in health and pathology.

Salmonella, classification and general characteristics. The role in the pathology, the pathogenesis of typhoid, manifestations in the oral cavity.

Shigella, classification, general characteristics. The role in pathology.

Common principle of microbiological diagnosis of acute intestinal infection.

Etiology of food poisoning. Principles of microbiological diagnostics.

Laboratory work: Identification of enterobacteria by morphological, cultural, biochemical and antigenic properties.

LABORATORY CLASS 17	Date: 22.12.2025–26.12.2025

TOPIC: Methods of microbiological diagnostics of klebsiellosis. Diagnostics of diseases caused by campylobacter and helicobacter. Microbiological diagnostics of pseudomonas infection.

Suggested reading for self-study:

Klebsiella, classification and general characteristics, main diseases caused.

Campylobacter, general characteristics, role in human pathology. Mechanisms of pathogenesis. Diagnosis of campylobacteriosis. Helicobacter.

Pseudomonas aeruginosa, general characteristics, role in human pathology.

Laboratory work: Identification of klebsiella by morphological, cultural, biochemical and antigenic properties.

Plans for laboratory classes were reviewed and approved at a meeting of the department on August 29, 2025, protocol No. 1.

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