

Approved by
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by protocol №10, 30.01.2024

**Syllabus of practical classes in Microbiology
for the 1st year students within English-speaking medium for the 2nd term
for Pharmacy Faculty**

The end of the theoretical course– 25.06.24

№	Themes	Time
1. 01.02. - 10.02.2024	Microbiological laboratories, their equipment. Safety rules for working with gas, living microorganisms. Morphology of bacteria. Microscopic method of investigation. Simple methods of staining.	2
2. 12.02. - 17.02.2024	Ultrastructure and chemical composition of the bacterial cell (obligate structures). Complex methods of staining.	2
3. 19.02. - 24.02.2024	Ultrastructure and chemical composition of the bacterial cell (non-obligate/non-persistent structures). Complex methods of staining.	2
4. 26.02. - 02.03.2024	Physiology of microorganisms. Nutrition and respiration of bacteria. Culture media. Bacterial growth and multiplication. Bacteriological method of investigation, its stages. Cultural properties of microbes.	2
5. 04.03. - 09.03.2024	Physiology of microorganisms. Methods of cultivation and isolation of pure cultures of aerobes and anaerobes. Bacterial enzymes, classifications. Biochemical activity of bacteria and methods of biochemical identification of microorganisms.	2
6. 11.03. - 16.03.2024	Morphology and physiology of actinomycetes, spirochetes, rickettsia, mycoplasmas and chlamydia. Methods of their study. Morphology and physiology of fungi, classification and methods of their study.	2
7. 18.03. - 23.03.2024	Morphology and physiology of viruses, classifications and general characteristics. Methods of their cultivation and viral detection.	2
8. 25.03. - 30.03.2024	Concluding session.	2

9. 01.04. - 06.04.2024	Genetics of microorganisms. Organization of genetic material in bacteria. Mutations in bacteria. Transduction, transformation and conjugation. Plasmids, their types and meaning. Genetic engineering. Molecular genetic methods for diagnosing of infectious diseases.	2
10. 08.04. - 13.04.2024	Sanitary microbiology. Bacteriology of water, air and soil. Sanitary-indicative microorganisms. Methods of their detection.	2
11. 15.04. - 20.04.2024	Normal microflora of the human body, its importance. Dysbacteriosis, conditions and stages of its development, prevention.	2
12. 22.04. - 27.04.2024	Microflora of medicinal plants, plant raw materials and medical forms. Phytopathogenic microorganisms. Methods for detection of microbial contamination of pharmacy rooms.	2
13. 29.04. - 04.05.2024	Influence of environmental factors on microorganisms. Physical and chemical factors. Sterilization and disinfection. Asepsis and antiseptics. Methods of sterilization and disinfection used in pharmaceutical practice.	2
14. 06.05. - 11.05.2024	The effect of biological factors on microorganisms. Chemotherapeutic agents, mechanisms of their action. Antibiotics: classification, mechanism of action. Determination of bacterial sensitivity to antibiotics. Bacteriophages, bacteriocins, phytoncides.	2
15. 13.05. - 18.05.2024	Concluding session.	2
16. 20.05. - 25.05.2024	Infection: types of infection, stages, the conditions for the development of the infectious process. Pathogenicity and virulence of microorganisms. Characteristics of bacterial toxins. Methods for detection of microbial toxins and aggressive enzymes. Biological method of study: its tasks, stages, significance.	2
17. 27.05. - 01.06.2024	Immunity. Types of immunity. Innate immunity. Factors and mechanisms of nonspecific resistance: anatomic barriers, humoral and cell factors of non-specific immunity, phagocytosis.	2
18. 03.06. - 08.06.2024	Acquired immunity. Cell-mediated and humoral immunity. T- and B-lymphocytes. Antibodies, classification. Antigens of bacteria and viruses. Serological method of study. Seroidentification and serodiagnosis.	2
19. 10.06. - 15.06.2024	Immunotherapy and immunoprophylaxis. Vaccines, Sera, Immunoglobulins, Toxoids, their classification and practical application.	2
20. 17.06. - 22.06.2024	Concluding session.	2