Speciality "General Medicine"

ACADEMIC DISCIPLINE
"MICROBIOLOGY, VIROLOGY, IMMUNOLOGY"
MEDICAL AND PREVENTIVE MODULE

Academic discipline outline	Pathogenic and indigenous microorganisms, their etiology, mechanisms of pathogenesis, laboratory diagnostic methods for bacterial, viral, fungal infections, and protozoal infestations, specific prevention, and etiotropic therapy. Structure and mechanisms of the human immune system, as well as methods and tools for diagnosing, treating, and preventing diseases that are rooted in immune dysfunction and/or immunological mechanisms.
Resulting skills	Advanced professional skills. To use knowledge about etiology, mechanisms of pathogenesis, methods of laboratory diagnostics, prevention, fundamentals of epidemiology and etiotropic therapy of infectious and parasitic diseases in humans
Learning outcomes	A student must: **know:** principles of microbiological taxonomy and nomenclature; morphology, genetics, antigen structure, physiology, and ecology of bacteria, viruses, fungi, and protozoa, as well as the fundamentals of biotechnology and genetic engineering; the influence of environmental factors on microorganisms, risk groups of microorganisms, and the microbiological basis of antimicrobial measures; the main groups of antimicrobial drugs, antiseptics, their mechanisms of action on microorganisms, mechanisms of formation, and methods for con-trolling microbial resistance; the normal microflora of the human body, its formation and biological role, the causes of development, and principles of correction of dysmicrobiosis (dysbacteriosis); factors of microorganism pathogenicity and their genetic control; etiology, mechanisms of molecular pathogenesis, microbiological, immunological, and molecular diagnostic methods, principles of etiotropic therapy and immunoprophylaxis of infections and protozoal infestations; the human immune system, mechanisms of natural and acquired immunity, immunopathogenesis of allergic, infectious-allergic, and autoimmune diseases, immunodeficiencies, principles of antitumor immunity; the immune status of the human body, age-related characteristics, and methods for its assessment;

	rules for collecting, labeling, and transporting biological material to the laboratory for bacteriological, virological, immunological, and molecular research; **be able to:** prepare referrals for microbiological, immunological, and molecular research; determine bacterial sensitivity to antibiotics using the disk diffusion method; perform serological agglutination, passive hemagglutination, latex agglutination, immunofluorescence, enzyme-linked immunosorbent assay, and immunochromatographic assay tests; assess and analyze immunogram parameters; evaluate the results of microbiological, immunological, and molecular studies; **master:** safe handling skills for biological material and live microbial cultures; use modern methods for disinfecting waste biological material and microbiologically contaminated objects in the human environment; techniques for preparing microbiological preparations and staining them using simple methods and the Gram method; light immersion microscopy techniques with a description of the results; a technique for primary seeding of biological material on nutrient media to isolate pure bacterial cultures.
Semester(s)	4,5 semesters
Prerequisite	History of Medicine Latin Medical biology and general genetics Medical and biological physics Human anatomy Histology, cytology, embryology General chemistry Bioorganic chemistry Biological chemistry Normal physiology
Credit value	6 credits
Academic hours	274 academic hours, of which: 104 class hours
Forms of	Test

midterm attestation	Examination