

Course name: Medical microbiology (USOS Code: B-MI.237E)

ECTS: 8

No. of hours: 90 (30 lectures + 60 classes)

Course coordinator: dr hab. Sylwia Wdowiak-Wróbel, prof. UMCS

Prerequisites: Biology course and/or General Microbiology course

Course description: The module covers the knowledge in the area of bacteria that cause human diseases. Basic information on human microbiome and medically important pathogens: Gram-positive cocci (Staphylococcus, Streptococcus, Enterococcus), Gram-positive spore-forming (Bacillus, Clostridium), Gram-negative bacilli (Enterobacterales -Yersinia, Salmonella, Shigella, Escherichia, coliforms, Klebsiella, Proteus), Gram-negative bacilli oxidase positive (Pseudomonas, Burkholderia), Gram-negative curved bacilli (Vibrio, Campylobacter, Helicobacter), Gram-negative coccobacilli (Brucella, Bordetella), fastidious Gram-negative bacteria (Neisseria, Haemophilus), Legionella, Coxiella, animal-associated bacteria (Erysipelotrix, Francisella, Pasteurella, Mannheimia), spirochetes (Treponema, Leptospira, Borrelia), Gram-positive bacilli (Listeria, Corynebacteria, Mycobacteria), obligate intracellular bacteria (Rickettsia, Chlamydia, Chlamydophila), cell wall-less bacteria (Mycoplasma, Ureaplasma). Identification of bacterial pathogens using molecular biology and microbiological techniques, examination of infections of the human body systems, ways and mechanisms of infection, prevention, and treatment. Basic aspects of antimicrobial chemotherapy. Labs: Introduction to Medical Microbiology; Laboratory safety principles; Principles of microbiological examination; Specimen selection and processing; Identification of pathogens (Staphylococcus spp.; Streptococcus spp.; Haemophilus spp.; Pseudomonas spp.; Enterobacteriaceae e.g. Escherichia, Serratia, Klebsiella, Salmonella; Yersinia spp., Corynebacterium spp., Listeria spp., Erysipelothrix rhusiopathiae, Moraxella catarrhalis) by clinical tests - Gram staining method, growth media for various microbiological tests, biochemical tests; Detection of bacterial pathogens using a PCR assay; Urinary tract infections; Antimicrobial susceptibility testing in vitro

Recommended literature: 1. Harrison's Infectious Diseases. by Dennis L. Kasper, Anthony S. Fauci; 2. Microbiology with diseases by body system. 4th ed. By R.W. Bauman; 3. Medical Microbiology by F.H. Kayser, K.A. Bienz, J. Eckert, R.M. Zinkernagel; 4. Practical Manual of Medical Microbiology by C.P. Prince; 5. Medical Microbiology, Jawetz, Melnick, Adelberg's; 6. Medical Microbiology, P. Murray, K. Rosenthal, M. Pfaller