

**DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES  
AT VILNIUS UNIVERSITY**

<b>Scientific Area/eas, Field/ds of Science</b>	Medical and Health Sciences (M 000): Medicine (M 001)			
<b>Faculty, Institute, Department/Clinic</b>	Faculty of Medicine Institute of Clinical Medicine Clinic of Infectious Diseases and Dermatovenerology			
<b>Course unit title</b> (ECTS credits, hours)	<b>Infectious Diseases: Diagnosis, Therapy and Prevention</b> 10 credits (270 hours)			
<b>Study method</b>	<b>Lectures</b>	<b>Seminars</b>	<b>Consultations</b>	<b>Self-study</b>
Number of ECTS credits	-	-	2	8
<b>Method of the assessment</b> (in 10 point system)	Exam (oral). Three questions are presented from the general and specific parts. Rating from 1 (very bad) to 10 (excellent) points.			
<b>PURPOSE OF THE COURSE UNIT</b>				
<p>To provide theoretical and practical knowledge of infectious diseases, covering the general principles of the occurrence, spread, manifestation, diagnosis, treatment and prevention of infectious diseases classified according to the pathogen, the affected system or the epidemiological process.</p> <p>To acquaint with the main features of the pathogenesis of infectious diseases, characteristic syndromes, modern diagnostic methods, principles of antimicrobial therapy and the significance of antimicrobial stewardship.</p> <p>To promote an interdisciplinary approach to the pathology of infectious diseases and its management in order to address specific problems and challenges relevant to general and doctoral topics.</p>				
<b>THE MAIN TOPICS OF COURSE UNIT</b>				
<p><u>General part</u></p> <p>Regularities of the occurrence and spread of infectious diseases, etiological factors. Relevance in Lithuania and in the world. Epidemiological process, emerging and re-emerging infectious diseases, bioterrorism. Basic pathogenesis of infectious diseases. Host defence mechanisms: innate and adaptive immunity, immunodeficiencies. Classifications of infectious diseases. Main syndromes of infectious diseases: definition, pathogenesis, severity criteria, significance for differential diagnosis. Sepsis, septic shock syndrome. Principles of infectious disease diagnosis, methods for the identification of microorganisms, assessment of antibiotic resistance. Principles of anti-infective therapy: etiologic, pathogenetic and symptomatic therapy. Groups of antimicrobial drugs, prescribing principles, molecular mechanisms of antibiotic resistance. Antimicrobial stewardship.</p> <p>Nosocomial infections: definition, epidemiology, clinical forms, prevention, principles of epidemiological surveillance and management.</p> <p>Vaccines and immunization. Immunoprophylaxis principles. Adult and at-risk groups immunization recommendations. Pre- and postexposure prophylaxis. Assessment of the immune response.</p> <p>Travel-related infectious diseases and their prevention. Principles of advice for pre-trip and returning traveller.</p> <p>Infections in immunocompromised host (patients with oncological diseases, solid-organ and hematopoietic stem cell transplants recipients, asplenic, elderly patients): aetiology, diagnosis, treatment and prevention peculiarities.</p>				

Zoonoses, features of the occurrence and spread, principles of prevention.

#### Special part

Bacterial infections: etiologic agents, pathogenesis, clinical course, complications, diagnosis and differential diagnosis, therapy principles, prophylaxis, prognosis. Typhus, paratyphus A and B; enteric fever, botulism, other food toxic infections, *E. coli* infection, shigellosis, campylobacteriosis, cholera, yersinioses (enteric and pseudotuberculosis). *Clostridium difficile* infection: significance in the ambulatory and hospital practice, principles of contemporary treatment, recurrence prevention. Meningococcal infection, fulminant meningococcaemia. Listeriosis. Pneumococcal infection. Streptococcal pharyngitis and tonsillitis, early and late complications; scarlet fever. Erysipelas. Enterococcal, staphylococcal infections. Diphtheria. Leptospirosis. Legionellosis. Chlamydia sp., Mycoplasma sp. Infections. Bartonellosis.

Viral infections: etiologic agents, pathogenesis, features of clinical course, complications, diagnosis and differential diagnosis, principles of therapy and prophylaxis, prognosis. Influenza and other acute viral respiratory infections. Influenza non-specific and specific prophylaxis, importance of vaccination for at-risk individuals. Coronavirus (SARS, MERS) infections. Covid-19 infection: features of aetiology, epidemiology, pathogenesis and clinical course, principles of diagnosis, treatment and prophylaxis, prognosis. Viral hepatitis A, B, C, D, E: features of aetiology, epidemiology, pathogenesis and clinical course, principles of diagnosis, treatment and prophylaxis. Herpes family (HSV, VZV, EBV, CMV, HH8) infections. Noro and rotavirus infections. Viral meningitis: etiologic agents, features of clinical course and diagnosis. HIV infection: aetiology, epidemiology, classifications, clinical course, principles of diagnosis and therapy, prophylaxis. AIDS opportunistic infections: aetiology, epidemiology, pathogenesis, clinical course, principles of diagnosis and treatment, primary and secondary prophylaxis. Protozoal intestinal invasions (amebiasis, balantidiasis, lambliaosis), helminthiasis (ascariasis, enterobiasis, trichiniasis, tapeworm invasions, echinococcosis). Toxoplasmosis: congenital and acquired, features of pathogenesis and clinical course in immunocompetent and immunocompromised patients; prevention during pregnancy.

Fungal infections. Systemic mycoses: candidiasis, aspergillosis, cryptococcosis, histoplasmosis, mucormycosis. *P. jirovecii* pneumonia: features of clinical course and diagnosis in HIV-infected and uninfected immunocompromised patient.

Tick-borne infections. Tick-borne encephalitis: aetiology, pathogenesis, clinical forms, diagnosis, treatment. Lyme disease, early and late clinical forms, diagnosis, treatment.

Travellers' infections. Malaria: *Plasmodium* species and geographical distribution, clinical forms, complications, diagnosis, principles of treatment and prophylaxis, prevalence of resistance to antimalarial drugs. Visceral leishmaniasis. Haemorrhagic fevers: etiologic agents, prevalence, principles of diagnosis, treatment and prevention.

Zoonoses: aetiology, geographical distribution, transmission ways, pathogenesis, features of clinical course, principles of diagnosis, treatment and prevention. Brucellosis, pest, tularaemia, anthrax, ornithosis, rabies, rickettsioses (Q fever, *Rickettsia conorii* infection), tetanus.

#### **RECOMMENDED LITERATURE SOURCES**

1. Bennett JE, Dolin R, Blaser MJ. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases. 9<sup>th</sup> edition, Elsevier Health Sciences, 2019.
2. Infekcinių ligų vadovas / Ambrozaitis A., Aukštuolienė E., Bareišienė M.V., Broslavskis E., Davidavičienė E., Gulbinovič J., Jančorienė L., Laiškonis A., Marcinkutė A., Marčiukaitienė I., Matulionytė R., Mickienė A., Pukenytė E., Ūsaitis

- J., Vagnoras A., Valintėlienė R., Vėlyvytė D., Žagminas K., Žlabys P. - Vilnius : Vaistų žinios, 2010.
3. Cohen J., Powderly W.G., Opal S.M. Infectious Diseases. Fourth edition, Elsevier, 2017.
  4. Hauser AR. Antibiotic basics for clinicians. 3<sup>rd</sup> edition, Wolters Kluwer, 2018.
  5. Mickienė A, Minkauskienė M, Jančorienė L ir kt. Perinatalinė infekcija. Humanitas, 2015.
  6. Cornaglia G, Coucol R, Hermann JL et al. European Manual of Clinical Microbiology, 1<sup>st</sup> edition, Epermay (Marne), 2012.
  7. Falagas ME, Mylonakis E. Gorbach's 5-Minute Infectious Diseases Consult. 2<sup>nd</sup> edition, Lippincott Williams & Wilkins, 2011.
  8. Hoffmann C, Rockstroh JK. HIV 2015/2016. Medizin Fokus Verlag, Hamburg, 2015.
  9. Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the Prevention and Treatment of Opportunistic Infections in Adults and Adolescents with HIV. Department of Health and Human Services. Available at: [https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/Adult\\_OI.pdf](https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/Adult_OI.pdf)
  10. European AIDS Clinical Society (EACS) Guidelines, version 11.0, October 2021. Available at: [https://www.eacsociety.org/media/final2021eacsguidelinesv11.0\\_oct2021.pdf](https://www.eacsociety.org/media/final2021eacsguidelinesv11.0_oct2021.pdf)

### **CONSULTING LECTURERS**

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#### **APPROVED:**

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University:  
29<sup>th</sup> of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė