



## SUBJECT OUTLINE

### 1. Programme of study description

1.1.	<b>THE "CAROL DAVILA" UNIVERSITY OF MEDICINE AND PHARMACY</b>
1.2.	<b>THE FACULTY OF MEDICINE / THE CLINICAL DEPARTMENT 2</b>
1.3.	<b>DISCIPLINE: INFECTIOUS DISEASES</b>
1.4.	<b>DOMAIN OF STUDY: Healthcare – regulated sector within the EU</b>
1.5.	<b>CYCLE OF STUDIES: BACHELOR'S DEGREE</b>
1.6.	<b>PROGRAMME OF STUDY: MEDICINE</b>

### 2. Subject description

2.1.	<b>Name of the subject/compulsory subject/elective subject within the discipline:</b>						
2.2.	<b>Location of the discipline:</b>						
2.3.	<b>Course tenured coordinator:</b>						
2.4.	<b>Practicals/clinical rotations tenured coordinator:</b>						
2.5.	<b>Course tenured coordinator - English module:</b>						
2.6.	<b>Practicals/clinical rotations tenured coordinator - English module:</b>						
2.7. Year of study	VI	2.8. Semester	XI-XII	2.9. Type of assessment	Written exam and practical exam	2.10. Subject classification	MANDATORY

### 3. Total estimated time (hours/semester of didactic activity) – teaching module

Number of hours per week	25	Out of which: course	10	Clinical rotation	15
Total number of hours from curriculum	140	Out of which: course	56	Clinical rotation	84
Distribution of allotted time	6 weeks	5 h/day			Hours
Study from textbooks, courses, bibliography, and student notes					yes
Additional library study, study on specialized online platforms and field study					yes
Preparing seminars / laboratories, assignments, reports, portfolios and essays					yes
Tutoring					yes
Examinations					yes
Other activities					
Total hours of individual study					
Number of credit points					8

### 4. Prerequisites (where applicable)

4.1. of curriculum	Fundamental knowledge of Microbiology, Virology, Parasitology, Immunology, Cell Biology, Internal Medicine.
4.2. of competencies	Not necessary.



### 5. Requirements (where applicable)

<b>5.1. for delivering the course</b>	Power Point presentation, use of video projector and other IT equipment. Location: Aula - HIV / AIDS Academy National Institute of Infectious Diseases "Prof.Dr. Matei Balș" Bucharest
<b>5.2. for delivering the clinical rotation</b>	Endowment with necessary equipment to carry out the practical lessons. Student access in hospital ward with beds of Infectious Diseases and clinical laboratories. Location: National Institute of Infectious Diseases "Prof.Dr. Matei Balș" Bucharest

### 6. Acquired specific competencies

<b>Professional competencies (expressed through knowledge and skills)</b>	<b>Acquiring the necessary and sufficient knowledge, so that at the end of the stage of Infectious Diseases students will know:</b>  <ol style="list-style-type: none"><li>1. Etiology, positive diagnostic algorithm and differential diagnostic in main infectious diseases.</li><li>2. First-line etiological treatment for major diseases infectious diseases.</li><li>3. Classification, mechanisms of action, spectrum, indications, contraindications, side effects, drug interactions, dosage and principles of judicious use of antibiotics, antivirals and antifungals.</li><li>4. Antimicrobial resistance and spread prevention strategies.</li><li>5. Context of occurrence of an infectious disease at the individual level and at community level, as well as choice and application of appropriate nonspecific and specific prophylaxis measures.</li><li>6. Vaccines from the National Vaccination Program for Children and Adults, as well as optional vaccines.</li><li>7. Presentation of a clinical case of infectious diseases, the collection of bibliographic material and writing a scientific presentation in connection with related aspects to infectious pathology.</li><li>8. To be able to initiate and carry out studies regarding clinical-evolutionary peculiarities encountered in infectious diseases and mastering the way of presenting the obtained results.</li></ol>
<b>Transversal competencies (of role, of professional and personal development)</b>	<ol style="list-style-type: none"><li>1. By acquiring the knowledge of infectious diseases, the student learns to identify the objectives that need to be achieved, the available resources, the work stages, the conditions and deadlines and the risks related to caring of a patient with infectious diseases.</li><li>2. Acquiring by students the concept of multidisciplinary specific to Infectious Diseases, as well as relationship techniques and effective teamwork.</li><li>3. Acquiring by students the rules of medical ethics.</li><li>4. The students will learn to efficiently use different information sources communication resources and assisted professional training (portals, internet, specialized software applications, databases, online courses) both in Romanian and in a language of international circulation.</li></ol>

### 7. Subject learning objectives (based on the scale of acquired specific competencies)



<b>7.1. General learning objective</b>	<b>Acquiring the knowledge that will allow to establish the correct diagnosis, treatment and prophylaxis in the main infectious diseases.</b>
<b>7.2. Specific learning objectives</b>	<b>Acquiring the knowledge that will allow:</b> <ol style="list-style-type: none"> <li>1. Correct and rapid diagnosis of major transmissible infectious diseases: performing the epidemiological anamnesis; recognition of specific clinical signs; knowledge and recommendation of specific etiological diagnostic tests and paraclinical investigations when necessary, as well as the correct interpretation of their results.</li> <li>2. Correct diagnosis of the main infectious syndromes and appropriate treatment, depending on the possible etiological agents involved.</li> <li>3. The correct and rapid choice of appropriate first-line antibiotic therapy.</li> <li>4. Correct and judicious use of antibiotics, antivirals and antifungals in current therapeutic practice, avoiding the selection of resistant mutants.</li> <li>5. Knowledge of the main measures for transmission prevention of infectious diseases: non-specific measures, vaccines, immunoglobulins, serum, antibiotic prophylaxis</li> <li>6. Correct assessment of the epidemiological risk and compliance with the epidemiological rules regarding the circuit of patients in the hospital.</li> </ol>

## 8. Content

<b>8.1. Course: 28 lectures of 2 hours each = 56 hours</b>  The Infectious Diseases module has a duration of 6 weeks and takes place during the first and second semesters of the sixth year.  For the discipline of Infectious Diseases I - INBI "Prof. Dr. Matei Balș" are distributed during each academic year 11 series of sixth year students from the Faculty of Medicine.	<b>Teaching methods</b>	<b>Observations</b>
<b>Course 1. Etiology of infectious diseases.</b> Classification and characteristics of pathogens involved in major infectious diseases: bacteria, viruses, fungi, parasites, unconventional infectious agents (prions). Human commensal flora. (2 hours)	Interactive exposure of the material according to the analytical program. Multimedia means, powerpoint presentations and didactic films will be used (regarding mechanisms of action of some anti-infective agents; mechanisms of microbial resistance, HIV and hepatitis viruses replication cycle)	
<b>Course 2. Definition and classification of infections. Pathogenesis of infectious diseases. Mechanisms of anti-infective defense:</b> non-specific means of defense (anatomical barriers, inflammatory reaction, phagocytosis, non-specific plasma and tissue factors). Specific means of defense (humoral and cellular immunity). Innate and acquired immune deficits. (2 hours)		
<b>Course 3. Diagnosis of infectious diseases</b> - epidemiological, clinical and laboratory diagnosis (hematological, biochemical, bacteriological, virological, parasitological, mycological, serological, molecular biology). (2 hours)		
<b>Course 4. Antibacterial therapy (antibiotic therapy):</b> general consideration, antibacterial activity (bactericidal and bacteriostatic effect, time-dependent antibiotics, concentration-dependent antibiotics, in vitro evaluation of antibacterial activity - MIC, MBC), principles of pharmacokinetics and pharmacodynamics, mechanisms		



of action, mechanisms of bacterial resistance to antibiotics, rules and principles of judicious antibiotic therapy. (2 hours)	
<b>Course 5. Description of the main classes of antibiotics</b> (Beta-lactams; Aminoglycosides; Glycopeptides; Macrolides; Lincosamides and Ketolides; Cyclines; Phenicol; Rifamycins; Oxazolidinones; Fluoroquinolones; Polymyxins; Sulfamides and Trimethoprim; Imidazoles; Other classes of antibiotics), antibacterial spectrum, indications, contraindications, adverse effects, drug interactions, dosage, mechanisms of bacterial resistance. (2 hours)	
<b>Course 6. Antiviral, antifungal, antiparasitic therapy:</b> description of the main classes of antiviral, antifungal and antiparasitic agents (class representatives, mechanism of action, spectrum of activity, indications, contraindications, adverse effects, drug interactions, dosage, resistance mechanisms). (2 hours)	
<b>Course 7. Non-etiological therapies in infectious diseases:</b> antipyretic therapy, anti-inflammatory therapy (NSAIDs and corticotherapy), immunomodulatory therapy. <b>Fever of unknown origin:</b> etiology (infectious and non-infectious causes), algorithms for positive and differential diagnosis, therapeutic approach. (2 hours)	
<b>Course 8. Vaccines / Immunoglobulins / Heterologous sera.</b> (2 hours)	
<b>Course 9. Acute inflammatory response syndrome, sepsis and septic shock:</b> definitions, epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and non-specific prophylaxis. <b>Bacterial endocarditis.</b> (2 hours)	
<b>Course 10. Acute febrile eruptive infectious diseases:</b> measles, rubella, chickenpox, shingles (definition, epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and non-specific prophylaxis). (2 hours)	
<b>Course 11. Acute pharyngitis - Angina. Scarlet fever. Diphtheria. Infectious mononucleosis</b> (definition, epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and non-specific prophylaxis). (2 hours)	
<b>Course 12. Flu. Acute upper respiratory tract infections:</b> definition, epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and non-specific prophylaxis. (2 hours)	
<b>Course 13. Emerging infections - SARS CoV2 infection:</b> definitions, etiology, epidemiology, clinical picture, laboratory diagnosis, evolution, prognosis, complications, treatment, specific and non-specific prophylaxis. (2 hours)	
<b>Course 14. Acute infections of the lower respiratory tract: bronchitis and acute exacerbations of COPD; acute pneumonia,</b>	



<b>pleural empyema.</b> (definition, epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and nonspecific prophylaxis). (2 hours)	
<b>Course 15. Other infections with aerogenic transmission: whooping cough, mumps:</b> definition, epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and non-specific prophylaxis. (2 hours)	
<b>Course 16. Acute meningitis and encephalitis:</b> definition, epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and non-specific prophylaxis. (2 hours)	
<b>Course 17. Viral meningitis. Bacterial meningitis. TB meningitis.</b> (2 hours)	
<b>Course 18. Acute infectious diseases with neurological damage (poliomyelitis, botulism, tetanus):</b> definition, epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and nonspecific prophylaxis. (2 hours)	
<b>Course 19. HIV/AIDS infection:</b> definition, epidemiology, pathogenesis, clinical manifestations, classification, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and nonspecific prophylaxis. (2 hours)	
<b>Course 20. Acute gastrointestinal infections:</b> definition, etiology, pathogenesis and ethiopathogenic classification (inflammatory and non-inflammatory). <b>Food poisoning.</b> (2 hours)	
<b>Course 21. Dysentery, cholera, post-antibiotic diarrhea, diarrhea with Clostridium Difficile, Typhoid fever.</b> (definition, epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and nonspecific prophylaxis). (2 hours)	
<b>Course 22. Acute viral hepatitis with hepatitis A and E viruses:</b> epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and nonspecific prophylaxis. (2 hours)	
<b>Course 23. Acute viral hepatitis with hepatitis B,C,D viruses:</b> epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and nonspecific prophylaxis. (2 hours)	
<b>Course 24. Zoonoses - Leptospirosis, Anthrax, Rabies.</b> (definition, epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and nonspecific prophylaxis). (2 hours)	
<b>Course 25. Zoonoses - Lyme disease, Rickettsiosis.</b> (definition,	



epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and nonspecific prophylaxis).(2 hours)		
<b>Course 26. Infections in immunodepressed. Nosocomial infections.</b> (definition, epidemiology, pathogenesis, etiology, clinical manifestations, laboratory diagnosis, positive and differential diagnosis, evolution, prognosis, complications, treatment, specific and nonspecific prophylaxis). (2 hours).		
<b>Course 27. Travel-related infectious diseases:</b> definition, epidemiology, diagnosis, treatment, means of specific and nonspecific prophylaxis. (2 hours).		
<b>Course 28. The importance and role of intensive care in the management of severe infectious diseases, in the context of epidemics and pandemics with respiratory tropism viruses.</b> The specialists and primary intensive care physicians from the Intensive Care Unit of the Infectious Diseases Hospital will be involved in the teaching activity. (2 hours).		
<b>8.2. Clinical rotation/practical rotation (PR): 28 PR of 3 hours = 84 hours</b>	<b>Teaching methods</b>	<b>Observations</b>
<b>CR 1.</b> Presentation of universal precautions for the prophylaxis of nosocomial infections transmitted through the blood and other biological fluids from patients. Presentation of nonspecific measures to prevent the transmission of infectious diseases by aerogenic and digestive way. Presentation of the rules of occupational safety and health during the infectious diseases training course. Presentation of the rules for the prevention and combating of fires at work (PSI) and the rules to be observed in case of emergency situations (earthquakes, etc.). (3 hours)	Clinical education at the bedside of the sick person, under the guidance of the group assistant. During the internship sessions, the direct participation of students in the anamnesis and the clinical examination of patients, the interpretation of laboratory tests in order to establish the positive diagnosis and the adequate treatment of the main infectious diseases are aimed at, in order to reach:  - differentiation between normal and pathological conditions related to infectious disease	
<b>CR 2.</b> Visiting the Bacteriology Laboratory (3 hours).		
<b>CR 3.</b> Visiting the Virology Laboratory (3 hours).		
<b>CR 4.</b> Visiting the Molecular Genetics Laboratory (3 hours).		
<b>CR 5.</b> Presentations of clinical cases at the patient's bedside, from the topics of the courses (3 hours)		
<b>CR 6.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 7.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 8.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 9.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 10.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 11.</b> Presentations of clinical cases at the patient's bedside, from the topics of the courses (3 hours)		
<b>CR 12.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		





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<b>CR 13.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)	<p>- recognition of symptoms/signs associated with infectious diseases</p> <p>- understanding how and stages of diagnosis in infectious diseases</p> <p>- knowledge of how to properly use antibiotics, antivirals and antifungals in the management of infectious diseases.</p> <p>- knowledge of vaccines from the National Vaccination Program and optional vaccines</p>	
<b>CR 14.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 15.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 16.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 17.</b> Presentations of clinical cases at the patient's bedside, from the topic of courses (3 hours)		
<b>CR 18.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 19.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 20.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 21.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 22.</b> Presentations of clinical cases at the patient's bedside, from the topics of the courses (3 hours)		
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<b>CR 24.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 25.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 26.</b> Presentations of clinical cases at the patient's bedside, from the topic of the courses (3 hours)		
<b>CR 27.</b> Presentations of clinical cases of severe infectious diseases in the ICU section of the Infectious Diseases Hospital, discussing their multidisciplinary management (3 hours). The specialists and primary intensive care physicians from the Intensive Care Unit of the Infectious Diseases Hospital will be involved in the teaching activity.		
<b>CR 28.</b> Discussing protocols and guidelines for diagnosis, treatment and prophylaxis in severe infections and in the context of epidemics and pandemics with respiratory tropism viruses (influenza, SARS-CoV2, etc.) (3 hours)		
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**Bibliography for course and clinical / practical rotation**

1. *The common course taught at the location of the discipline (word and ppt format).*
2. *Adrian Streinu-Cercel, Victoria Arama, Petre Iacob Calistru (under the editorial board), Infectious Diseases – Course for students and resident doctors – Volume 1, "Carol Davila" University Publishing House 2019.*
3. *Emanoil Ceausu (under the editorial board), Infectious Diseases Handbook, vol.1, Medical Publishing House, Bucharest, 2018*
4. *Emanoil Ceaușu (under the editor), Infectious Diseases Handbook, vol.2, Medical Publishing House, Bucharest, 2020*
5. *Mircea Chiotan (under the editorial office) "Infectious Diseases", National Publishing House, 2011.*
6. *Emanoil Ceausu (under the editorship). Infectious Diseases Course – Department of Infectious and Tropical Diseases "Dr Victor Babes" , 2012.*



7. *E. Pilly, ECN Pilly: Maladies Infectieuses et tropicales, 27e edition, 2020*
8. *Principles and Practice of Infectious Diseases John E. Bennett, Raphael Dolin, Martin J. Blaser, Mandell, Douglas and Bennett'S 9th Edition, 2019, Elsevier Saunders.*

**9. Corroboration of the subject content with the expectations of the representatives of the epistemic community, professional associations, and major employers in the field of the programme of study**

The concepts of the infectious diseases discipline exposed through lectures and practical lessons are in accordance with the requirements of the European medical university education, being supported by those in the specialized bibliography, helping to integrate the information obtained in the multidisciplinary context, thus favoring the development of competences in establishing a diagnosis.

The professional training of the sixth-year student in the Discipline of Infectious Diseases aims the following: learning the principles of correct diagnosis and treatment of eruptive and non-eruptive infectious diseases, the correct use of antibiotherapy, an effective communication relationship with the patient and his family and preparing the future doctor for a good / adequate professional communication with the future employer.

**10. Assessment**

Type of activity	Assessment criteria	Assessment methods	Assessment weighting within the fin
<b>Course</b>	Attendance at the course Final theoretical written exam	Final written test, multiple choice test, with 50 questions with multiple answers, to which can be added 3 questions with narrative answers. (Duration 2 hours).	
	Two written papers or oral colloquia - with the group assistant, during the practical lessons	Written paper no. 1, with 10 questions or oral colloquium, with the group assistant - during the 3rd week of the practical lessons  Written paper no. 2, with 10 questions or oral colloquium, with the group assistant - during the 5th week of the practical lessons	
<b>Clinical rotation/ Practical rotation</b>	Presence at PR Weekly clinical case presentations by each group of students	Oral	
	Practical exam	The practical exam will take place under the coordination of the	





		<p>group assistant and at the end will be supervised by the lectures coordinator. Each student will receive from the group assistant a real clinical case from the patients admitted to the clinic, respecting the lecture topics.</p> <p>The student will have to perform the patient's medical history and clinical examination within 20 minutes, after which he will ask the group assistant for the results of the laboratory tests / investigations in order to establish the diagnosis and to recommend the appropriate treatment.</p> <p>Then, in the following 20 minutes, the student will formulate in writing positive and differential diagnosis, will propose a therapeutic plan and a plan to prevent the transmission of infectious disease. Then, the student will present the clinical case in front of the colleagues and the group assistant and will argue the established diagnosis and the proposed treatment, receiving a grade from 1-10 from the group assistant.</p> <p>At the end, the lecture coordinator will ask at</p>	
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		least one question to each student, from the clinical case, in order to validate the grade given by the group assistant.	
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**Minimum performance standard**

- Minimum 75% attendance at lectures
- Carrying out all practical lessons. The absence from the practical lessons can be recovered until the end of the clinical stage, during on-call shifts and consultations.
- The minimum passing grade is 5 (five)

**Date of filing**  
**19.05.2021**

**Signature of the course tenured coordinator**

**Signature of the seminar tenured coordinator**

**Date of approval in the Council of the Department:**

**Signature of the Head of the Department**