



Syllabus for academic year: 2021/2022													
Training cycle: 2020/21-2024/25													
Description of the course													
Course	Microbiology								Group of detailed education results				
									Group code	Group name			
									C	Preclinical sciences			
Faculty	Faculty of Dentistry												
Major	Dentistry												
Level of studies	X uniform magister studies												
Form of studies	X full-time												
Year of studies	2						Semester: 3	X winter					
Type of course	X obligatory												
Language of study	X English												
Number of hours 35													
Form of education													
	Lectures (L)	Seminars (SE)	Auditorium classes (AC)	Major Classes – not clinical (MC)	Clinical Classes (CC)	Laboratory Classes (LC)	Classes in Simulated Conditions (CSC)	Practical Classes with Patient (PCP)	Foreign language Course (FLC)	Physical Education (PE)	Vocational Practice (VP)	Directed Self-Study (DSS)	E-learning (EL)
<b>Winter semester: 35</b>													
Department of Microbiology (Unit realizing the course)													
Direct (contact) education		15				20							
Distance learning													
<b>Educational objectives</b>													
C1. Acquiring knowledge about the most important pathogenic groups of bacteria, fungi and viruses.													
C2. Getting acquainted with the basic procedures of microbiological diagnostics: selection, collection and transportation of diagnostic materials; methods of culturing, isolation and identification of microorganisms.													
C3. Understanding the principles of antibiotic therapy of infections and methods of antimicrobial susceptibility testing.													
C4. Understanding the mechanisms of the emergence and spread of microbial resistance to antibiotics and chemotherapeutic agents.													
C5. Preparation for the correct interpretation of the results of microbiological tests and the selection of rational antibiotic therapy.													
C6. Analysis of the methods and principles of infection control (sterilization, disinfection, antiseptics, vaccination) with particular emphasis on control procedures in dentistry.													



Education result for course in relation to verification methods of the intended education result and the type of class:				
Number of detailed education result	Student who completes the course knows/is able to know and understand:	Methods of verification of intended education results	Form of didactic class <i>*enter the abbreviation</i>	
<b>C.W1</b>	types, species and structures of viruses, bacteria, fungi and parasites, their biological characteristics and mechanisms of pathogenicity	<u>Forming methods:</u> assessment of active participation in classes and student's own presentations  <u>Summary methods:</u> MCQ tests	SE, LC	
<b>C.W2</b>	the physiological bacterial flora in the human body		SE, LC	
<b>C.W3</b>	the basics of epidemiology of viral and bacterial infections, fungal and parasitic infections and the routes through which they spread in the human body		SE, LC	
<b>C.W4</b>	the species of bacteria, viruses and fungi which are the most common aetiological agents of contagious and infections		SE, LC	
<b>C.W5</b>	the basics of disinfection, sterilisation and aseptic techniques		LC	
<b>C.W6</b>	external and internal pathogens		SE, LC	
<b>C.W9</b>	the phenomenon of emergence of drug resistance;		SE, LC	
<b>C.U1</b>	collect an appropriately selected type of biological material for microbiological testing depending on the location and course of infection		implementation of the commissioned task	LC
<b>C.U2</b>	interpret results of microbiological tests, antibody tests and antibiograms;		implementation of the commissioned task	LC
<b>C.U3</b>	select and perform tests which indicate the number of bacteria in body fluids	implementation of the commissioned task	LC	
<b>C.U5</b>	analyze the clinical course of diseases in pathological processes	MCQ test	SE	
<b>C.U7</b>	identify pathological changes caused by HIV infection and observed in patients with acquired immunodeficiency syndrome (AIDS)	MCQ test	SE	
* L- lecture; SE- seminar; AC- auditorium classes; MC- major classes (non-clinical); CC- clinical classes; LC- laboratory classes; CSC- classes in simulated conditions; PCP- practical classes with patient; FLC- foreign language course; PE- physical education; VP- vocational practice; DSS- directed self-study; EL- E-learning				
Student's amount of work (balance of ECTS points):				
Student's workload (class participation, activity, preparation, etc.)		Student Workload		
1. Number of hours of direct contact:		35		
2. Number of hours of distance learning:				
3. Number of hours of student's own work:		65		
4. Number of hours of directed self-study				
Total student's workload		100		
ECTS points for course		5		



<b>Content of classes:</b>
<p><b>Seminars</b> (6 x 2h + 1 x 3h)</p> <ol style="list-style-type: none"> <li>1. Introduction to medical microbiology. Classification of microorganisms.</li> <li>2. Gram-positive bacteria and associated systemic diseases.</li> <li>3. Tuberculosis, actinomycosis, nocardiosis, diphtheria.</li> <li>4. Antibiotics and treatment of infectious diseases.</li> <li>5. DNA and RNA viruses of particular relevance in dental practice.</li> <li>6. Fungi and fungal infections of the oral cavity.</li> <li>7. The oral cavity as a microbial habitat. The role of microbial biofilm.</li> </ol>
<p><b>Classes</b> (10x2h)</p> <ol style="list-style-type: none"> <li>1. Bacterial morphology. Methods of staining and visualization of microorganisms. Microscopic examination.</li> <li>2. Gram-positive cocci of <i>Staphylococcus</i>, <i>Streptococcus</i> and <i>Enterococcus</i>.</li> <li>3. Gram-positive bacilli: <i>Bacillus</i>, <i>Clostridium</i> and <i>Clostridioides</i>.</li> <li>4. Gram-negative fermenting and non-fermenting rods.</li> <li>5. Gram-negative cocci of <i>Neisseria</i>, <i>Moraxella</i>, small rods <i>Haemophilus</i> and other.</li> <li>6. Anaerobic bacteria of <i>Bacteroides</i>, <i>Porphyromonas</i>, <i>Prevotella</i>, <i>Fusobacterium</i> and other.</li> <li>7. Laboratory diagnostics of bacterial, fungal and viral infections.</li> <li>8. Antibiotics and chemotherapeutic agents - mechanisms of antimicrobial action and antimicrobial susceptibility test methods.</li> <li>9. Mechanisms of antimicrobial resistance. Detection of resistance phenotypes: ESBL, KPC, MBL, MRS, VISA, VRSA, MLSb, VRE/GRE, HLAR and other.</li> <li>10. Infection control: disinfection, sterilization and microbiological safety.</li> </ol>
<p><b>Basic literature</b></p> <ol style="list-style-type: none"> <li>1. Medical Microbiology, Patrick R. Murray, Ken S. Rosenthal, Michael A. Pfaller; Elsevier, 9th Edition</li> <li>2. Essential Microbiology for Dentistry. Lakshman Samaranayake; Elsevier, 5th Edition</li> </ol> <p><b>Additional literature and other materials</b></p> <ol style="list-style-type: none"> <li>1. Lippincott's Illustrated Reviews: Microbiology. Richard A. Harvey, Cynthia Nau Cornelissen, Bruce D. Fischer. Wolters Kluwer, 4th Edition</li> </ol>
<p><b>Preliminary conditions:</b> Credit in Molecular Biology with the basics of Genetics (the 1<sup>st</sup> year of studies)</p>
<p><b>Conditions to receive credit for the course</b></p> <ol style="list-style-type: none"> <li>1. active participation in seminars and laboratory classes</li> <li>2. a positive assessment of tests (Multiple Choice Question; MCQ; close-ended and open-ended questions) covering a specific range of topics from the Microbiology subject</li> <li>3. credit of 1 seminar presentation,</li> </ol> <p><u>The condition for taking the final exam is obtaining a pass in:</u> seminars, laboratory classes in microbiology laboratory classes in oral microbiology.</p> <p>The final exam (multiple choice question test, MCQ) is combined for two subjects - Microbiology and Oral Microbiology. It covers all topics covered during seminars and laboratory exercises (60 questions). Satisfactory grades: 5.0 / 4.5 / 4.0 / 3.5 / or 3.0.</p>

Grade:	Criteria for exam
Very Good (5.0)	60-58 correct answers
Good Above (4.5)	57-54 correct answers
Good (4.0)	53-51 correct answers
Satisfactory Plus (3.5)	50-45 correct answers
Satisfactory (3.0)	44-39 correct answers



<b>Unit realizing the course:</b>	Faculty of Medicine, Department of Microbiology			
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<b>Telephone:</b>	+48 717841275 (secretary's office)			
<b>E-Mail:</b>	ewa.dworniczek@umed.wroc.pl			
<b>Person responsible for the course:</b>				
	dr hab. Ewa Dworniczek			
<b>Telephone:</b>	+48 717841296			
<b>E-Mail:</b>	ewa.dworniczek@umed.wroc.pl			
<b>List of persons conducting specific classes:</b>				
Name and surname	Degree/scientific or professional title	Discipline	Performed profession	Form of classes
Ewa Dworniczek	dr hab.	medical sciences	academic teacher, microbiologist, laboratory diagnostician	seminars, laboratory classes
Urszula Walczuk	dr	medical sciences	academic teacher, microbiology specialist	seminars

**Date of Syllabus development**

23.07.2021

**Syllabus developed by**

dr hab. Ewa Dworniczek

dr Urszula Walczuk

**Signature of Head(s) of teaching unit(s)**

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**Dean's signature**

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