Appendix
to Resolution No. 2186
of Senate of Wroclaw Medical University
of 1 July 2020

Syllabus for academic year: 2020/2021 Training cycle: 2019-2024			
Description of the course			
Module/Course	MIKROBIOLOGY	Group of detailed education results	
		Group code	Group name
Faculty	DENTISTRY		
Major	MEDICINE		
Unit realizing the subject	DEPARTMENT OF MICROBIOLOGY		
Specialties	MICROBIOLOGY		
Level of studies	Uniform magister studies **X*** 1st degree studies ☐ 2nd degree studies ☐ 3rd degree studies ☐ postgraduate studies ☐		
Form of studies	**X** full-time ☐ part-time		
Year of studies	2	Semester 3	X Winter ☐ Summer
Type of course	**X obligatory** ☐ limited choice ☐ free choice / elective		
Course	☐ major **X** basic		
Language of instruction	☐ Polish **X English** ☐ other		
* mark ☐ with an **X**			
Number of hours 35			
Form of education			

Unit teaching the course	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)	Specialist Classes – magister studies (SCM)	Foreign language Course (FLC)	Physical Education obligatory (PE)	Vocational Practice (VP)	Self-Study (Student's own work)	E-learning (EL)
Winter Semester														
Direct (contact) education						20								
Online learning (synchronous)		**15**												
Distance learning (asynchronous)														

Summer Semester														
Direct (contact) education														
Online learning (synchronous)														
Online learning (asynchronous)														
TOTAL per year: 35														
Direct (contact) education						20								
Online learning (synchronous)		15												
Online learning (asynchronous)														

Educational objectives (max. 6 items)

C1. Understanding the most important groups of pathogenic bacteria, fungi, and viruses.
C2. Knowledge of basic microbiological diagnostic procedures: selection, collection and transportation of diagnostic materials; methods of culture, isolation and identification of microorganisms.
C3. Understanding the principles of antibiotic therapy of infections, methods of determining the susceptibility of microorganisms to antibiotics and chemotherapeutic agents.
C4. Understanding the mechanisms of microbial resistance to antibiotics and chemotherapeutic agents.
C5. Preparing students for the correct interpretation of the results of microbiological tests and the selection of rational antibiotic therapy.
C6. Methods of preventing and combating infections (sterilization, disinfection, antiseptics, preventive vaccinations).

Education result matrix for module/course in relation to verification methods of the intended education result and the type of class

Number of course education result	Number of major education result	Student who completes the module/course knows/is able to	Methods of verification of intended education results (forming and summarising)	Form of didactic class ***enter the abbreviation*
K.1	**C.K1**	Graduate knows genera and species as well as the structure of viruses, bacteria, fungi, their biological characteristics and mechanisms of pathogenicity	tests, presentations, oral response, oral or written exam	SE, LC
K.2	**C.K2**	Graduate knows and gives description of the physiological microflora of the mouth		SE, LC
K.3	**C.K3**	Graduate knows and understands the basics of epidemiology of viral, bacterial, and fungal infections, as well as the ways of spreading infections in the human body.		SE, LC

K.4	**C.K4**	Graduate knows the species of bacteria, viruses and fungi that are the most common etiological agent of infections .	tests, presentations, oral response, oral or written exam	SE, LC
K.5	**C.K5**	Graduate knows and understands the basis of sterilization and disinfection and sterile disposal.		SE, LC
K.6	**C.K6**	Graduate knows endogenous and exogenous pathogenic agents of human infections.		SE, LC
K.7	**C.K20**	Graduate knows and understands the principles of viral, bacterial and fungal therapy of infections.		SE, LC
S1.	**C.S1**	Student is able to collect proper sample for microbiological examination depending on the location and course of infection.	Evaluation of the implementation and correct interpretation of microscopic preparations in the immersion system, assessment of the ability to differentiate bacterial cultures; oral responses, direct observation of the student	LC
S2.	**C.S2**	Student can interpret microbiological examination and antimicrobial susceptibility test results.		SE, LC
S3.	**C.S3**	Student can select and perform proper diagnostic tests.		SE, LC

** L - lecture; SE - seminar; AC – auditorium classes; MC – major classes (non-clinical); CC – clinical classes; LC – laboratory classes; SCM – specialist classes (magister studies); CSC – classes in simulated conditions; FLC – foreign language course; PCP practical classes with patient; PE – physical education (obligatory); VP – vocational practice; SS – self-study, EL – E-learning .

Please mark on scale 1-5 how the above effects place your classes in the following categories:
communication of knowledge, skills or forming attitudes:
Knowledge: 5
Skills: 4

Student's amount of work (balance of ECTS points)

Student's workload (class participation, activity, preparation, etc.)	**Student Workload (h)**
1. Contact hours:	35
2. Online learning hours (e-learning):	
3. Student's own work (self-study):	85
Total student's workload	120
ECTS points for module/course	5
Comments	

Content of classes (please enter topic words of specific classes divided into their didactic form and remember how it is translated to intended educational effects)

Lectures

Seminars (6 x 2h + 1 x 3h = 15 h)

1. Introduction to medical microbiology. Classification of microorganisms.
2. Gram-positive bacteria and associated systemic diseases.
3. Tuberculosis, actinomycosis, nocardiosis, diphtheria.
4. Antibiotics and treatment of infectious diseases.
5. Fungi and fungal infections of the oral cavity.
6. Viruses of particular relevance in dental practice. Oro-facial viral infections
7. The oral cavity as a microbial habitat. Dental diseases.

Laboratory classes (10 x 2 h = 20h)

1. Microscopic examination of microorganism. Microscopes. Microbial morphotypes. Preparation of samples. Stains (simple, differential).
2. Characteristics of Gram-positive cocci: *Staphylococcus, Streptococcus, Enterococcus*
3. Gram-positive bacilli Bacillus, *Clostridium* and *Clostridioides.*
4. Gram-negative bacilli: *Enterobacteriales* and nonfermenters.
5. Gram-negative cocci *Neisseria, Moraxella* and fastidious Gram-negative *Haemophilus* and other.
6. Spiral-shaped and atypical bacteria.
7. Anaerobic bacteria of *Bacteroides, Porphyromonas, Prevotella, Fusobacterium* and other.
8. Antibacterial mechanisms of action. Antimicrobial susceptibility test methods.
9. Mechanisms of antimicrobial resistance. Detection of ESBL, KPC, MBL, MRS, MLS_b, VRE, HLAR, clinically relevant phenotypes.
10. Control of infections: disinfection, sterilization and microbiology safety.

Other

Basic literature (list according to importance, no more than 3 items)

1. Medical Microbiology, 9th Edition. Patrick R. Murray, Ken S. Rosenthal, Michael A. Pfaller
2. Essential Microbiology for Dentistry. 5th Edition. Lakshman Samaranayake.

Additional literature and other materials (no more than 3 items)

Didactic resources requirements (e.g. laboratory, multimedia projector, other…)

Light microscopes, a dark field microscope (CPW), a fluorescence microscope, incubators, refrigerators, laboratory tables with sinks and gas burners, multimedia projector.

Preliminary conditions (minimum requirements to be met by the student before starting the module/course)

Completion of the 1st year of studies.

Conditions to receive credit for the course (specify the form and conditions of receiving credit for classes included in the module/course, admission terms to final theoretical or practical examination, its form and requirements to be med by the student to pass it and criteria for specific grades)

1. Presence and activity (student presentations) at seminars.
2. Presence and activity on laboratory classes.
3. Preparation for classes and seminars in accordance with the teaching program.

Condition for the accession to the final examination are: credit of class and seminar attendance, getting positive results of the 3 class tests (in the form of open and closed questions, a positive mark ≥60% of scored points), and credit of 1 presentation. The final examination (test) is accumulative and covers all material presented in the seminar and lab components of the course (60 questions / 1.5 h). Satisfactory grades: 5.0/4.5/4.0/3.5/ or 3.0. Each absence must be made up, including the rector days or the dean hours.

Grade:	**Criteria** (only for courses/modules ending with an examination)
Very Good (5.0)	92-100% positive answers
Good Plus (4.5)	84-91% positive answers
Good (4.0)	76-83% positive answers
Satisfactory Plus (3.5)	68-75% positive answers
Satisfactory (3.0)	60-67% positive answers
	Criteria (only for courses/modules ending with e credit)
Credit	

Grade:	**Criteria** (examination evaluation criteria)
Very Good (5.0)	92-100% positive answers
Good Plus (4.5)	84-91% positive answers
Good (4.0)	76-83% positive answers
Satisfactory Plus (3.5)	68-75% positive answers
Satisfactory (3.0)	60-67% positive answers
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List of persons conducting specific classes				
Full name	**Degree/scientific or professional title**	**Discipline**	**Performed profession**	**Form of classes**
Ewa Dworniczek	dr hab	medical biology	academic teacher, microbiologist, laboratory diagnostician	laboratory classes, seminars
Urszula Walczuk	dr n. med.	medical biology biotechnology	specialist in microbiology	seminars

Date of Syllabus development

24.09.2020

Syllabus developed by

dr hab. Ewa Dworniczek

dr n. med. Urszula Walczuk

Signature of Head of teaching unit

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Signature of Faculty Dean

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