

Subject name Microbiology	ECTS Code																
Name of unit teaching the subject THE ZBIGNIEW RELIGA FACULTY OF MEDICAL SCIENCES IN ZABRZE, THE UNIVERSITY OF TECHNOLOGY IN KATOWICE																	
Studies																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Field of study</th> <th style="width: 25%;">degree</th> <th style="width: 25%;">mode</th> <th style="width: 25%;">major</th> <th style="width: 20%;">specialization</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">medical</td> <td style="text-align: center;">Uniform Master's</td> <td style="text-align: center;">Stationary/non-stationary</td> <td></td> <td></td> </tr> </tbody> </table>		Field of study	degree	mode	major	specialization	medical	Uniform Master's	Stationary/non-stationary								
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Surname of instructor (instructors)																	
Type of class, method of implementation and specified number of hours	Amount of ECTS points																
A. Type of class <ul style="list-style-type: none"> • lecture, • exercise classes, • <u>clinical exercise classes</u> • seminars, • design classes • laboratories, • lectureship, • diploma seminar, • professional internship.* <p>* mark where applicable</p>	Description of awarding ECTS points: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Activity</th> <th style="width: 30%;">Student workload</th> </tr> </thead> <tbody> <tr> <td>Participation in lectures</td> <td style="text-align: center;">45 hours</td> </tr> <tr> <td>Participation in practical classes</td> <td style="text-align: center;">30 hours</td> </tr> <tr> <td>Preparation for practical classes and colloquiums</td> <td style="text-align: center;">35 hours</td> </tr> <tr> <td>Examination preparation</td> <td style="text-align: center;">40 hours</td> </tr> <tr> <td>Consultations</td> <td style="text-align: center;">40 hours</td> </tr> <tr> <td>Total number of hours</td> <td style="text-align: center;">190 hours / 30</td> </tr> <tr> <td>Amount of ECTS points per module</td> <td style="text-align: center;">7 ETCS</td> </tr> </tbody> </table>	Activity	Student workload	Participation in lectures	45 hours	Participation in practical classes	30 hours	Preparation for practical classes and colloquiums	35 hours	Examination preparation	40 hours	Consultations	40 hours	Total number of hours	190 hours / 30	Amount of ECTS points per module	7 ETCS
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B. Method of implementation <ul style="list-style-type: none"> • classes in a didactic room • on-line classes/blended learning • classes outside the didactic room (in this case must specify where they are held) 																	
C. Amount of hours in accordance with the approved curriculum <ul style="list-style-type: none"> - lectures – 30 hours - seminars – 15 hours - exercise classes – 30 hours 																	
Didactic cycle 3rd year, 5th semester																	
Subject status <ul style="list-style-type: none"> • mandatory / facultative 	Language of instruction Polish																
Didactic methods Lectures, multimedia presentation Discourse, discussion, Case analysis, demonstration Lab exercise classes	Forms and methods of passing and general grading criteria or examination requirements <hr style="border-top: 1px dashed black;"/> A. Method of passing <ul style="list-style-type: none"> • examination • passing with a grade* <p>* mark where applicable</p>																

B. Forms of passing:

- **written examination:** test / with open questions (exercises)/longer written statement
 - oral examination
 - oral test/colloquium
 - **completion of a semester assignment: preparation of a design or presentation/conducting research and presenting its results(written/oral)/completion of a specified practical work**
 - **agreeing on a passing grade based on partial grades received during the course of the semester***
- * mark where applicable

C. Basic grading criteria

Grades and examination criteria are individually specified and correspond to the educational effects

Definition of preparatory subjects and initial requirements

Medical biology, genetics, chemistry, biochemistry

Subject aim

The aim of teaching medical microbiology is to become familiar with

- bacteriology, virology, mycology, and clinical parasitology
- the basics of microbiological diagnosis
- the methods of collecting and transporting infectious material for examinations
- the basis of pathogenesis of infectious diseases and the epidemiology of these diseases
- the causes, epidemiology and diagnosis of hospital infections
- the methods of examining drug sensitivity and the principles of selecting tests to evaluate the resistance of bacteria to antibiotics
- the principles of prophylaxis of infections and principles of disinfection and sterilization

Curriculum**Lectures :**

- classification of microorganisms, methods of their examination and evaluation of virulence
- the human microbiome and its role in the physiology and pathology of diseases
- pathogenesis of bacterial, viral, parasitic and mycotic infections
- analysis of individual groups of microorganisms from the point of view of their pathogenicity
- drug sensitivity of microorganisms, problems of resistance to antibiotics
- principles of collecting material for microbiological examinations
- selection of diagnostic methods and the interpretation of the results of bacteriological, virological, mycological, and parasitological tests
- the use of immunologic methods in molecular biology in the diagnosis of infectious diseases
- human endo and ectoparasites and their role in the pathogenesis of invasive diseases

Exercise classes and seminars:

- systematics of microorganisms, construction, methods of classification
- methods of testing, breeding, and coloring bacteria, fungi, and parasites
- physiology of microorganisms, conditions of growth, bacteria genetics
- characteristics of individual groups of bacteria, methods of testing, factors of pathogenicity of microorganisms, types of diseases
- techniques of testing drug sensitivity, multi-drug resistance of bacteria and fungi
- principles of selecting antibiotics for individual groups of microorganisms
- virology, clinical methods of virological examinations, pathogenesis of infections, and laboratory diagnosis of viral diseases
- clinical mycology, methods of mycological tests, pathogenesis of mycological infections, laboratory diagnosis of mycological diseases
- methods of disinfection and sterilization and aseptic behavior as well as methods of quality control of such behavior
- bacteriologically used techniques in diagnosing hospital infections
- human endoparasites, stadia of their development and methods of infection detection
- human ectoparasites and their participation in the transport of pathogens

Literature		
A. Literature required to receive a final credit for classes: -Zaremba M., Borowski J. Mikrobiologia Lekarska PZWL -Virella G. Mikrobiologia i choroby zakaźne Wydawnictwo Medyczne Urban & Partner, Wrocław 2000 -Kurnatowska A., Kurnatowski P. Mykologia medyczna, EDRA Urban & Partner, Wrocław 2018 -Colier L., Oxford J. Wirusologia PZWL -Hryniewicz W., Meszarosz J. Antybiotyki w profilaktyce i leczeniu zakażeń PZWL -E.M Szewczyk Diagnostyka bakteriologiczna PWN B. Supplementary literature - Murray P et al. Mikrobiologia Urban & Partner Wrocław 2018, E.A. Adalberg Przegląd mikrobiologii lekarskiej PZWL - Murray P et al. Mikrobiologia. Pytania testowe Urban & Partner Wrocław 2009 -E. Jawetz, J.T. Melnik, E.A. Adalberg Przegląd mikrobiologii lekarskiej PZWL 1991 -Markiewicz Z. et al. Mikrobiologia krótkie wykłady PWN, 2004		
Educational effects:		
Effect no	Description of an educational effect	Reference to field of study related effects
Knowledge:		
W1	Knows the basics of acquiring drug resistance by microorganisms	C.W11
W2	Classifies microorganisms taking into account disease-creating and present in the human physiological flora	C.W12
W3	Knows the epidemiology of infectious and invasive diseases taking into account disease globalization and climate change	C.W13
W4	Knows the influence of biotic and abiotic factors of the environment on the occurrence of human infectious and invasive diseases and the principles of prophylaxis of these diseases	C.W14
W5	Knows the developmental forms of endo- and ectoparasites which are invasive for man, taking into account their presence in the environment	C.W16
W6	Knows the pathogenesis of parasitic infections and principles of their diagnosis	C.W17
W7	Knows the causes of iatrogenic infections, their pathology and how to act in order to prevent them	C.W18
W8	Knows and understands the basics of microbiological, virological, mycological, and parasitological diagnosis	C.W19
W9	Knows the basics of disinfection, sterilization, and asepticism	C.W20
W10	Understands the problem of antibiotic resistance on an individual scale, the scale of population and the environment	C.W40
Abilities:		
U1	Diagnoses the most commonly occurring human parasites based on the anatomical features, developmental forms, and disease symptoms	C.U7
U2	Can prepare a microscopic slide and recognize pathogens under a microscope	C.U9
U3	Interprets the results of microbiological examinations	C.U10
U4	Designs a schedule of rational, empirical and targeted chemotherapy of infections	C.U15
Social competencies:		

K1	Recognizes his own diagnosis and treatment limitations, educational needs, plans his educational activities	
K2	Can work in a professional team, in a multi-cultural and multi-national environment	
K3	Implements principles of professional collegueship and collaboration with representatives of other professions as far as healthcare	
K4	Protects patient confidentiality and patient rights	

Methods used in the verification of educational effects

Educational effect	Type of grade				
	colloquiums	Solving problems during exercise classes	Solving problems in groups	Oral examination	Written examination
W1-W10	X				X
U1	X				X
U2	X				X
U3	X				X

Form of grade:

Individual topics end with a written colloquium, positive results from each of the colloquiums are the basis of passing the subject and being able to take the examination

Criteria of grading the educational effects:

- sufficient grade means answering correctly 60-70% of the questions
- good grade means answering correctly 71-85% of the questions
- very good grade means answering correctly more than 86% of the questions