

Pomorski Uniwersytet Medyczny w Szczecinie

Syllabus General information

Module title	Microbiology
Module type	Obligatory
Faculty PMU	Faculty of Medicine (WL)
Major	Medicine
Level of study	long – cycle
Mode of study	Full – time study
Year of study/semester	Year III rd , semesters 5 th and 6 th
ECTS credits	$1^{st} - 3, 2^{nd} - 4$
Types of training	Lectures e-learning - 7hrs (4/3), Seminars 29hrs (16/13), practical classes – 34hrs (16/18)
Form of assessment	□ graded assessment: □ descriptive □ practical □ oral □ non-graded assessment □ final examination: □ descriptive ⋈ test □ practical □ oral
Head of the Department	Dr n. med. Joanna Jursa-Kulesza asiaju@pum.edu.pl
Tutor responsible for the module	Dr n. med. Helena Masiuk
Department 's web site	https://www.pum.edu.pl/studia_iii_stopnia/informacj e_z_jednostek/wmis/katedra_mikrobiologii_immuno logii_i_medycyny_laboratoryjnej/samodzielna_praco wnia_mikrobiologii_lekarskiej/
Language	English

Detailed information

Module objectives		The aim of education is to familiarize students with the general microbiology and to explain the basics of clinical Microbiology issues.
Prerequisite/essential requirements	Knowledge	Microorganisms classification, prokaryotic and eukaryotic cell structure and their functions, their functional specializations and ability to cause the diseases in humans and animals. The basics of non-specific and specific responses to infection, basic concepts of genetic acquisition of drug resistance by microorganisms, intrinsic and acquired resistance antimicrobial agents, strict pathogenic microorganisms and representatives of human microbiota, etiology of infectious diseases and its prevention, epidemiology of bacterial, fungal and viral infections, basics of microbiological, fungal and viral diagnostic, aseptic techniques, types of biological specimen used in microbiological diagnostics and rules of its collection and proceeding.
	Skills	Microscope operating, biological samples safe handling, compliance with microbiological safety rules. Evaluation of the environmental hazards and application of basic methods to detect the presence of harmful factors, recognition of the most common human infectious agents on the basis of their construction, microscope operating, biological samples safe handling, interpretation of microbiological results.
	Competences	Understanding of the concept and the need for accountability for the entrusted good, integration of the knowledge obtained on the other practical courses, systematic approach to learning, teamwork

Learning outc	Learning outcomes						
Number of learning outcome	Student, who has passed the subject knows/is able to/can	Symbol (refferning to the standards)	Methods of verification of learning outcomes				
W01	Knows the basic cell structures of various microorganisms, their functional specializations and their abilities to cause the diseases in human and animals.	C.W01 C.W02 C.W10	Continuous assessment entry test, test examination				
W02	Knows and understands the basic mechanisms of acquisition of drug resistance by microbes.	C.W11	Continuous assessment entry test, test examination				
W03	Classifies microorganisms, including strict pathogenic and representatives of the human microbiota.	C.W12	Continuous assessment entry test, test examination				

	Knows the influence of abiotic and		
W04	biotic environmental factors on the human body, describes the consequences of the exposure of the humans body to various chemical and biological factors, knows principles of infectious diseases prevention.	C.W14	Continuous assessment entry test, test examination
W05	Knows the epidemiology of bacterial, viral and fungal infections	C.W13	Continuous assessment entry test, test examination
W06	Knows invasive forms or phases of development of selected parasitic fungi, protozoans, helminthes and arthropods	C.W15	Continuous assessment entry test, test examination
W07	Describes principles of parasite-host interactions	C.W16	Continuous assessment entry test, test examination
W08	Recognizes the basic symptoms of iatrogenic infections, knows the ways of infectious disease transmission.	C.W17	Continuous assessment entry test, test examination
W09	Knows and understands the basics of microbiological diagnostics.	C.W18	Continuous assessment entry test, test examination
W10	Knows the basics of disinfection, sterilization and aseptic procedures.	C.W19	Continuous assessment entry test, test examination
W11	Knows the basic principles of antibiotic therapy of infectious diseases, concepts of combination, targeted and empiric therapy.	C.W37	Continuous assessment entry test, test examination
W12	Knows the main side effects and antimicrobial agents interactions	C.W38	Continuous assessment entry test, test examination
W13	Understands the problem of antibiotic resistance	C.W39 C.W41	Continuous assessment entry test, test examination
W14	Knows the specimen collection principles, rules of specimen storage, transport and processing.	C.W18	Continuous assessment entry test, test examination
W15	Knows the main etiological agents of infections of particular human organs/systems: blood, respiratory tract, gastro-intestinal tract,	C.W18	Continuous assessment entry test, test examination

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			attitude assess	sment
K05	Accepts the need of foreign language skills.	K10	student 's participation attitude assess	active and sment
K06	Takes care of own, co-workers and environmental safety.	K15	student 's participation attitude assess	active and sment
K07	Is aware of own limits and knows when consult the experts.	K17	student 's participation attitude assess	active and sment

Table presenting the LEARNING OUTCOMES in relation to the form of classes								
		Type of training						
Number of learning outcome	Learning outcome	Lecture	Seminar	Practical/labor atory classes	Clinical studies	Simulations	E-learning	Other
W01	C.W01 C.W02 C.W10		X				X	
W02	C.W11		X					
W03	C.W12		X	X			X	
W04	C.W14		X				Х	
W05	C.W13		X				Х	
W06	C.W15		X				X	
W07	C.W16		X				X	
W08	C.W17		X				Х	
W09	C.W18		X				Х	
W10	C.W19			X			X	
W11	C.W37		X	X			X	
W12	C.W38		X				X	
W13	C.W39 C.W41		X	X			X	
W14	C.W18		X	X				
W15	C.W18		X					
U01	C.U6		X					
U02	C.U7		X	X				
U03	C.U8		X	X				
U04	C.U9			X				

U05	C.U10		X		
U06	C.U11		X		
U07	C.U12		X		
U08	C.U15		X		
U09	C.U18	X			
K01	K01	X	X		
K02	K02	X	X		
K03	K03	X	X		
K04	K04	X	X		
K05	K10	X	X		
K06	K15		X		
K07	K17		X		

Table presenting TEACHING PROGRAMME					
Number of Teaching programme	Teaching programme	Number of hours	References to learning outcomes		
Winter semest		•			
	Seminars	<u> </u>	1		
TK01	Basics of medical bacteriology – morphology and physiology of bacteria	2	W01,W03,W04,W09		
TK02	Basics of medical mycology: morphology and philology of yeasts, moulds and dermatophytes	1	W03,W04,W05,W06, W09		
TK03	Basics of medical virology Bacteriophages, prions.	1	W03,W04,W05,W06, W09		
TK04	Gram-positive bacteria: classification and characteristics	1	W03,W04,W05,W06, W07,W09		
TK05	Gram-negative bacteria: classification and characteristics	1	W03,W04,W05,W,06 ,W07,W09		
TK06	Human microbiota	1	W01, W03, W04, W09,W14		
TK07	Laboratory diagnostic of infectious diseases.	1	W01, W03, W04, W09, W11		

TK08	Fungal infections: laboratory diagnosis, clinical manifestations, treatment.	2	W03,W04, W05, W09, W11
TK09	Viral infections: laboratory diagnosis, clinical manifestations, treatment.	2	W01,W07, W08, W09, W11
TK11	Basics of chemotherapy, AST rules	4	W01,W10,W11
TK12	Antimicrobial resistance and rational chemotherapy	4	W11,WW12,W02,W1
	Practical classes		
TK01	Differentation of bacteria (basics)	3	U04,U01,U02,K04,K 07
TK02	Differentation of fungi.	2	U04,U01,U02,U05, U07,K04,K07
TK03	Viruses – isolation and detection.	2	U05, U03,K04,K07,K02,K 06
TK04	Differentiation of gram-positive bacteria.	2	U04,U01,U02,U05,U 06,U07,K04,K07
TK05	Differentiation of gram-negative bacteria.	2	U04,U01,U02,U05,U 06,U07,K04,K07
TK06	Diagnosis of anaerobic infections	1	U04,U01,U02,U05,U 06,U07,K04,K07
TK07	Diagnostics of fungal infections	1	U03,U04,U01,U05,U 06,U07,K04,K07
TK07	Diagnostics of viral infections	1	U03,U04,U01,U05,U 06,U07,K04,K07
TK08	Interpretation of AST	1	U08,K04,K07
TK09	Mechanisms of antimicrobial resistance	1	U05,U08,U09
Summer sem	ester		,
	Seminars		Ι
TK01	Microbiological diagnosis of respiratory tract		W01,W03,W02,W05,

	infections	1	W06,W08,W09, W14,W15
TK02	Gastrointestinal tract infections	1	W01,W03,W02,W05, W06,W08, W09,W14,W15
TK03	Urinary tract infections	1	W01,W03,W02,W05, W06,W08,W09, W14,W15
TK04	Sexually transmitted infections. Perinatal infections	1	W01,W03,W02,W05, W06,W08,W09, W14,W15
TK05	Antropozoonoses	4	W04,W06,W07,W11
TK06	Neuroinfections, blood infections, endocarditis	3	W01,W03,W02,W0 5,W06,W08,W09, W14,W15
TK07	Skin, bones and joints infections.	1	W01,W03,W02,W0 5,W06,W08,W09, W14,W15
TK08	Hospital acquired infections	1	W02,W11,W12,W13
TK09	Microbial decontamination	1	W10, W11
TK10	Opportunistic infections	2	W01,W02,W03,W02, W05,W06,W08,W09, W11,W12,W13,W14, W15
	Practical classes		
TK01	Microbiological diagnosis of respiratory tract infections and eye infections	2	U02,U03,U04,U05, U06,U08,U09,K04, K06, K01
TK02	Microbiological diagnosis of gastrointestinal tract infections.	2	U02,U03,U04,U05, U06,U08,U09,K04, K06, K01

			U02,U03,U04,U05,	
TK03	Microbiological diagnosis of urinary tract infections.	2	U06,U08,U09,K04, K06,K01	
TK04	Microbiological diagnosis of sexually transmitted infections and perinatal infections (STIs).	2	U02,U03,U04,U05, U06,U08,U09,K04, K06,K01	
TK05	Microbiological diagnosis of meningitis, blood infections and endocarditis.	3	U02,U03,U04,U05, U06,U08,U09,K04, K06,K01	
TK06	Microbiological diagnostics of skin, bone and joint infections.	2	U02,U03,U04,U05, U06,U08,U09,K04, K06,K01	
TK07	Hospital – acquired infections (epidemiological investigation)	2	U02,U03,U04,U05, U06,U08,U09,K04, K06,K01	
TK08	Opportunistic infections	1	W01,W02,W03,W02 ,W05,W06,W08,W0 9, W11,W12,W13,W14 ,W15	
	Virtual simulation			
E-learning				
	In accordance with the schedule	<u> </u>		

Booklist

Obligatory literature

1. Medical Microbiology – Murray P. R., Rosenthal K. S., Pfaller M.A. – the newest edition

Supplementary literature

- 1. Mims' Medical Microbiology Goering R.V., Dockrell H.M., Zuckerman M., Roitt I.M., Chiodini P.L. fifth edition
- 2. Notes on Medical Microbiology K.N. Ward, K.C. McCartney, B. Thakker, 2008, 2nd ed, ISBN 9780443102844
- 3. EUCAST www.eucast.org

Student's workload	
Forms of student 's activity (in class participation; activeness, produce a report, etc.)	Student 's workload [h]
	Tutor
Contact hours with the tutor	70

Time spent on preparation to seminars/practical classes	140
Time spent on reading reccomended literature	70
Time spent on writing report/making a project	-
Time spent on preparing to colloquium/entry test	100
Time spent on preparing to exam	40
Other	
Student 's Workload in total	350
ECTS credit for the subject (in total)	7
Remarks	
Remarks	

^{*}Methods of assessment:

ET- test examination

RZC – practical classes report

O – student 's active participation and attitude assessment

 $W-entry\ test$