



Pomorski Uniwersytet Medyczny w Szczecinie

SYLLABUS of the MODULE (SUBJECT)

General information

Module title	MICROBIOLOGY AND IMMUNOLOGY
Module type	Obligatory
Faculty PMU	Medicine and Dentistry (WLS)
Major	Medicine and Dentistry (KLD)
Specialty	-
Level of study	long-cycle
Mode of study	full-time/part-time
Year of studies, semester e.g. Year 1, semester (I and II)	Year 2 , semester III
ECTS credits (incl. semester breakdown)	4
Type/s of training	Lectures/ practical classes(40h: 10/30)
Form of assessment	final examination - test
Head of the Department/ Clinic, Unit	dr n. med. Joanna Jursa-Kulesza
Persons conducting classes with indication of a tutor or person responsible for the module	dr n. med. Joanna Jursa-Kulesza dr n. med. Ludmiła Szymaniak dr n. med. Magdalena Kaczała
Department's/Clinic's/Unit's website	https://www.pum.edu.pl/wydzialy/wydzial-lekarski/zaklad-mikrobiologii-lekarskiej
Language	Polish/English

Detailed information

Module objectives		The module objective is to get acquainted with the positive and negative role of microorganisms for man and the environment in which he lives, to know the most important biological features of bacteria, viruses and fungi occurring physiologically and pathogenic for man, and the mechanisms of interaction in the microbe-host system. The ability to recognise and detect infections: the correct collection and transport of materials/samples for microbiological tests, the isolation and identification of microorganisms and immune reactions, the clinical interpretation of microbiological and serological test results. Knowledge of infection prevention and control (disinfection, sterilisation, antibiotic therapy, vaccination, hospital infection control). Knowledge and understanding of how the immune system works to fight infection.
Prerequisite /essential requirements	Knowledge	Basic knowledge of cell structure of prokaryotes (bacteria) and eukaryotes (fungi)
	Skills	Operation of an optical microscope
	Competences	Self-education habit, teamwork

Description of the learning outcomes for the subject /module			
No. of learning outcome	Student, who has passed the module (subject) knows /is able to /can:	SYMBOL (Referring to Assumed Learning Outcomes)	Means of verification of learning outcomes*
W01	knows types/species and structure of viruses, bacteria, fungi and parasites, their biological features and mechanisms of pathogenicity and the most common etiological factors of infections, he knows external and internal pathogens	K_C. W01	W,O,S,RZĆ
W02	knows and can describe the physiological bacterial flora of humans	K_C. W02	W,O,S,RZĆ
W03	knows and understands the basics of epidemiology of viral, bacterial, fungal and parasitic infections as well as ways of spreading infections in the human organism	K_C. W03	W,O,S,RZĆ
W04	Knows the species of bacteria, viruses and fungi which are the most common etiological agents of infections and infestations	K_C. W04	W,O,S,RZĆ
W05	knows the basics of disinfection, sterilisation and aseptic management	K_C. W05	W,O,S,RZĆ
W06	knows external and internal pathogenic factors	K_C. W06	W,O,S,RZĆ
W07	knows the structure of the immune system and understands its role	K_C. W07	W,O,S,RZĆ

W08	He knows humoral and cellular mechanisms of innate and acquired immunity and mechanisms of hypersensitivity reactions and autoimmune processes	K_C. W08	W,O,S,RZĆ
W09	knows and understands the phenomenon of drug resistance formation	K_C. W09	W,O,S,RZĆ
W10	He knows the basics of immunodiagnosis and immunomodulation	K_C. W10	W,O,S,RZĆ
W11	knows pathomechanism of allergic diseases, selected diseases related to hypersensitivity, autoimmune diseases and immune defects	K_C. W11	W,O,S,RZĆ
W12	knows the concepts of: homeostasis, adaptation, resistance, immunity, susceptibility, compensation mechanisms, feedback and "vicious circle" mechanism	K_C. W12	W,O,S,RZĆ
U01	Takes appropriately selected biological material for microbiological examination depending on the localization and course of infection	K_C. U01	W,O,S,RZĆ
U02	Interprets the results of microbiological, serological and antibiogram tests	K_C. U02	W,O,S,RZĆ
U03	Select and perform appropriate tests indicating the number of bacteria in body fluids	K_C. U03	W,O,S,RZĆ
K01	shows habit of self-education and lifelong education	K_K01	W,O,S,RZĆ

Table presenting LEARNING OUTCOMES in relation to the form of classes						
item	SYMBOL (referring Assumed Learning Outcomes)	Form of didactic classes				
		Lecture	Seminar	Practical classes	Clinical classes	other ..
1.	K_C. W01	X		X		
2.	K_C. W02	X		X		
3.	K_C. W03	X		X		
4.	K_C. W04	X		X		
5.	K_C. W05	X		X		
6.	K_C. W06	X		X		
7.	K_C. W07	X		X		
8.	K_C. W08	X		X		
9.	K_C. W09	X		X		
10	K_C. W10	X		X		
11	K_C. W11	X		X		
12	K_C. W12	X		X		
13	K_C. U01			X		
14	K_C. U02			X		
15	K_C. U03			X		
16	K_K01			X		
No. of learning content	Description of learning content	Num ber of hours	References to learning outcomes for the module			
TK 01	W.1:Basic detection of bacterial, viral and fungal infections.and their diagnosis.	2	W01,W03,W04,W06,U01,U02, U03,K01			
TK 02	W.2:Characteristics of antimicrobial drugs.	2	W01,W03,W04,W06,W09,U01, U02,U03,K01			
TK 03	W.3:Human microflora, factors determining pathogenicity of microorganisms, infections with acid-resistant mycobacteria.	2	W01,W02,W03,W04,W06,U01, U02,U03,K01			
TK 04	W.4: Plant infections	2	W02,W05,W09,U01,U02,U03,K 01			
TK 05	W.5:Immunoprophylaxis, infectious immunology and disorders of the immune system	2	W07,W08,W10,W11,W12,U02, K01			
TK 06	Pr.Cl 1: Basics of bacterial and fungal differentiation	3	W01,W04, K01			
TK 07	Pr.Cl. 2: Classification of microorganisms. Principles of microbiological material collection.	3	W01,W04,W03,W06,U03,K01			
TK 08	Pr.Cl. 3: Viruses	3	W01,W04,W03,W06,U01,U02K 01			

TK 09	Pr.Cl. 4: Chemotherapy of infections	3	W01,W04, W09,U01,U02,K01
TK 10	Pr.Cl. 5: Physiological flora of man. Gram(+), Gram(-) aerobic, relatively anaerobic and anaerobic cocci	3	W01,W02,W03,W04,U01,U02,U03,K01
TK 11	Pr.Cl. 6: Gram(+), Gram(-) aerobic, relatively anaerobic and anaerobic rods	3	W01,W02,W03,W04,U01,U02,U03,K01
TK 12	Pr.Cl. 7: Principles of infection control. Disinfection and sterilization. Mechanisms of microbial resistance.	3	W05,W09,U02,K01
TK 13	Pr.Cl. 8: Basic principles of the immune system. Non-specific immunity	3	W07,W08,W10,W12,U02,K01
TK 14	Pr.Cl. 9: Specific immune response. Immunoprophylaxis, immunotherapy	3	W07,W08,W10,W12,U02,K01
TK15	Pr.Cl. 10: Biological consequences of immune response. Immune deficiencies	3	W07,W08,W10,W12,U02,K01

Booklist:	
Obligatory literature:	
1. Mikrobiologia- P.R. Murray, K.S. Rosenthal, M.A. Pfaller;	
2. Antybiotykoterapia- D. Dzierżanowska	
Supplementary literature:	
1. Mikrobiologia lekarska – F. Kayser, K. Bienz, J. Eckert, R. Zinkernagel	
2. Immunologia – I. Roitt, J. Brostoff, D. Male	

Nakład pracy studenta (bilans punktów ECTS)			
Form of student’s activity (in-class participation; activeness, produce a report, etc.)	Student’s workload [h]		
	Tutor	Student	Mean
Contact hours with the tutor	40		
Time spent on preparation to seminars/ practical classes	40		
Time spent on reading recommended literature	40		
Time spent on writing report/making project			
Time spent on preparing to colloquium/ entry test			
Time spent on preparing to exam	40		
Other			
Student’s workload in total	160		
ECTS credits for the module/subject	4		
Notes			

* Selected examples of methods of assessment:

EP – written examination

EU - oral examination

ET – test examination

EPR – practical examination

K – colloquium

R – report

S – practical skills assessment

RZC – practical classes report, incl. discussion on results

O - student's active participation and attitude assessment

SL - lab report

SP – case study

PS - assessment of student's ability to work independently

W – entry test

PM – multimedial presentation

other...