



## Pomorski Uniwersytet Medyczny w Szczecinie

### SYLLABUS of the MODULE (SUBJECT)

#### General information

Module name: Microbiology and Immunology	
Module type	Obligatory
Faculty PMU	Medicine and Dentistry (WLS)
Major	Medical and Dentistry (KLD)
Specialty	-
Level of study	Long-cycle studies
Form of study	full-time/part-time
Year, semester of studies 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	<b>final examination - test</b>
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	<a href="https://www.pum.edu.pl/wydzialy/wydzial-lekarski/zaklad-mikrobiologii-lekarskiej">https://www.pum.edu.pl/wydzialy/wydzial-lekarski/zaklad-mikrobiologii-lekarskiej</a>
Language	Polish/English

### Detailed information

Module/subject objectives		The basic aim of the course is to familiarize with the positive and negative role of microorganisms for for man and the environment in which he lives, learning the most important biological features of bacteria, viruses and fungi occurring physiologically and learning about the most important biological characteristics of bacteria, viruses and fungi occurring physiologically and pathologically in humans, as well as the mechanisms of interaction in the microbe-host system. ability to recognise and detect infections: the correct collection and transport of materials/samples for microbiological tests, isolation and identification of microorganisms and immune reactions, clinical interpretation of microbiological and serological findings. knowledge of infection prevention and control (disinfection, sterilisation, antibiotic therapy, immunization, hospital infection control). Learning and understanding how the immune system works to control infections.
Prerequisite /essential requirements	Knowledge	Basic knowledge of cell structure of prokaryotes (bacteria) and eukaryota (fungi)
	Skills	Operation of an optical microscope
	Competences	The habit of self-education, teamwork

Description of learning outcomes for the module (subject)			
No. of learning outcome	Student, who has passed the (subject)	Symbol (Referring to) Assumed Learning Outcomes	Means of verification of learning outcomes*
W01	Knows the 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, knows external and internal pathogenic factors	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 bases of epidemiology of viral, bacterial, fungal and parasitic infection as well as route of transmission in human body	K_C. W03	W,O,S,RZĆ
W04	knows species of bacteria, viruses and fungi that are most frequent etiological agents of infection	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 and understands external and internal pathogens	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	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	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 hypersensitivity diseases, autoimmune and immunodeficiency diseases	K_C. W11	W,O,S,RZĆ
W12	He knows the concepts of: homeostasis, adaptation, resistance, immunity, susceptibility, compensation mechanisms, feedback and "vicious circle" mechanism	K_C. W12	W,O,S,RZĆ
U01	is able to select the appropriate type of biological material for microbiological examination depending on the localization and course of infection	K_C. U01	W,O,S,RZĆ
U02	interprets results of microbiological examination, serological investigation and antibiogram	K_C. U02	W,O,S,RZĆ
U03	chooses and carries out appropriate tests indicating the number of bacteria in body fluids	K_C. U03	W,O,S,RZĆ
K01	Demonstrates the habit of self-education and of lifelong learning	K_ K01	W,O,S,RZĆ

Table presenting LEARNING OUTCOMES in relation to the form of classes						
No.	Symbol (referring to) Assumed Learning Outcomes	Form of didactic classes				
		Lecture	Seminar	Practical classes	Clinical classes	others ...
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	No. of hours	Referring to learning outcomes for the module			
TK 01	W.1: Basics of 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, determinants of 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,K01			
TK 05	W.5: Immunoprophylaxis, infectious immunology and disorders of immune system	2	W07,W08,W10,W11,W12,U02, K01			
TK 06	Practical class 1: Basics of differentiation of bacteria and fungi	3	W01,W04, K01			
TK 07	Practical class 2: Classification of microorganisms. Principles of material collection for microbiological examination.	3	W01,W04,W03,W06,U03,K01			
TK 08	Practical class 3: Viruses	3	W01,W04,W03,W06,U01,U02 K01			
TK 09	Practical class 4: Chemotherapy of infections	3	W01,W04, W09,U01,U02,K01			

TK 10	Practical class 5{ Physiological flora of man. Gram(+), Gram(-) aerobic, relatively anaerobic and anaerobic cocci	3	W01,W02,W03,W04,U01,U02,U03,K01
TK 11	Practical class 6: Gram(+), Gram(-) aerobic, relatively anaerobic and anaerobic bacilli	3	W01,W02,W03,W04,U01,U02,U03,K01
TK 12	Practical class 7: Principles of infection control. Disinfection and sterilization. Resistance mechanisms of microorganisms	3	W05,W09,U02,K01
TK 13	Practical class 8: Basic principles of the immune system. Non-specific immunity	3	W07,W08,W10,W12,U02,K01
TK 14	Practical class 9: Specific immune response. Immunoprophylaxis, immunotherapy	3	W07,W08,W10,W12,U02,K01
TK15	Practical class 10: Biological consequences of immune response. Immune deficiencies	3	W07,W08,W10,W12,U02,K01

<b>Booklist</b>	
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	

Student's workload (balance of ECTS credits)			
Form of student's activity (in-class participation; activeness, produce a report, etc.)	Student's workload [h]		
	Tutor	Student	Average
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 on Laboratory/practical classes/making project/paper etc.			
Time spent on preparing to colloquium/short 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

SL – laboratory report

SP – case study

PS - assessment of student's ability to work independently

W – entry test

PM – multimedial presentation

and other