



Pomeranian Medical University in Szczecin

SYLLABUS of the MODULE (SUBJECT) General Information

Module title: MICROBIOLOGY & IMMUNOLOGY	
Module type	Obligatory
Faculty PMU	Faculty of Medicine and Dentistry
Major	Dentistry
Level of study	long-cycle (S2J)
Mode of study	full-time studies
Year of studies, semester	Year II, semester 1 (winter)
ECTS credits (incl. semester breakdown)	2(0+2)
Type/s of training	seminars -20hrs (17hrs +3hrs e-learning) / practical -20hrs
Form of assessment*	<input type="checkbox"/> graded assessment: <ul style="list-style-type: none"> <input type="checkbox"/> descriptive <input type="checkbox"/> test <input type="checkbox"/> practical <input type="checkbox"/> oral <input type="checkbox"/> non-graded assessment X final examination <ul style="list-style-type: none"> <input type="checkbox"/> descriptive X test <input type="checkbox"/> practical <input type="checkbox"/> oral
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Tutor responsible for the module	dr n. med. Magdalena Mnichowska-Polanowska magdalena.mnichowska.polanowska@pum.edu.pl 91 466 16 52
Department's/ Clinic's/ Unit's website	https://www.pum.edu.pl/studia_iii_stopnia/informacje_z_jednostek/wmi/katedra_mikrobiologii_immunologii_i_medycyny_laboratoryjnej/samodzielna_pracownia_mikrobiologii_lekarskiej/
Language	english

* replace into where applicable

Detailed information

Module objectives		<p>The general purpose of the Microbiology & Immunology course is to provide the student an understanding of the role of the microorganisms and the immune response in health and disease as well as to provide the ability to apply this knowledge to diagnosis and prevention of infections.</p> <p>Detailed objectives focus on to provide:</p> <ol style="list-style-type: none"> 1) a basic knowledge about structure and pathogenic properties of bacteria, fungi and viruses 2) a knowledge about human microbiota, 3) epidemiological factors contributing to human infectious disease 4) knowledge about microbiological diagnosis scheme 5) introduction to chemotherapy and antimicrobial agents 6) fundamentals of human nonspecific and specific immune response to infectious diseases 7) a knowledge about prevention of infections - by decontamination techniques and vaccination <p>a basic knowledge about immunological mechanisms involved in hypersensitivity, autoimmunity, immunodeficiency and transplantation</p>
Prerequisite /essential requirements	Knowledge	Basic procaryotic and eukaryotic cell structure and their functions, human anatomy and physiology.
	Skills	Microscope operating
	Competences	Self- education, need of lifelong education, integration of the knowledge obtained on other preclinical courses , co-operation with team members (class-mates); respect / no ignorance the laboratory safety rules in range of working with biological material (biohazard), caution/responsibility when using the laboratory equipment/tools

Description of the learning outcomes for the subject /module

No. of learning outcome	Student, who has passed the (subject) knows /is able to /can:	SYMBOL (referring the standards)	Method of verification of learning outcomes*
W01	knows and understands correlations between organisms in ecosystem	B.W15.	ET/W/O/RZĆ
W02	knows and undertands types, species and structure of viruses, bacteria, fungi and parasites, their biological properties and mechanisms of pathogenicity	C.W1.	ET/W/O/RZĆ
W03	knows und undertands human physiological bacterial flora	C.W2.	ET/W/O/RZĆ
W04	knows and understands bases of epidemiology of viral, bacterial, fungal and parasitic infection as well as route of transmission in human body	C.W3.	ET/W/O/RZĆ
W05	knows and undertands species of bacteria, viruses and fungi that are most frequent etiological agents of infection	C.W4.	ET/W/O/RZĆ
W06	knows and undertands bases for disinfection, sterilization and aseptics	C.W5.	ET/W/O/RZĆ
W07	knows und undertands external and internal	C.W6.	ET/W/O/RZĆ

	pathogens		
W08	knows und undertands structure of immune system and role thereof	C.W7.	ET/W/O/RZĆ
W09	knows und undertands humoral and cellular mechanisms of acquired and congenital immune resistance, hypersensitivity reaction and autoimmunological reactions	C.W8.	ET/W/O/RZĆ
W10	knows and understands process of acquiring drug-resistance	C.W9.	ET/W/O/RZĆ
W11	knows and understands bases of immunodiagnostics and immunomodulation	C.W10.	ET/W/O/RZĆ
W12	knows and understands pathomechanism of allergic diseases, selected diseases related to hypersensitivity, autoimmune diseases and immune defects	C.W11.	ET/W/O/RZĆ
W13	knows and understands concepts of: homeostasis, adaptation, resistance, immunity, susceptibility, compensation mechanisms, feedback and 'vicious circle' mechanism	C.W12.	ET/W/O/RZĆ
W14	knows and understands principles of immunity to contagious diseases in children and adults	E.W9.	ET/W/O/RZĆ
W15	knows and understands immunological aspects of transplantation and chemotherapy	E.W16.	ET/W/O/RZĆ
U01	is able to sample suitably selected biological material for microbiological examination with regard to course and localization of infection spot	C.U1.	W/O/S/RZĆ
U02	is able to interpret results of microbiological examination, serological investigation and antibiogram	C.U2.	W/O/S/RZĆ
U03	is able to select and perform certain tests to identify number of bacteria in body fluids	C.U3.	W/O/S/RZĆ
U04	is able to determine the pathologic changes of cells, tissues and organs according to basic mechanisms	C.U14.	W/O/S/RZĆ
K01	is ready to notice and recognize own limitations, make self-assessment of educational deficits and needs	K.5.	O/RZĆ
K02	is ready to propagate health-promoting behavior	K.6.	O/RZĆ

Table presenting LEARNING OUTCOMES in relation to the form of classes

No. of learning outcome	Learning outcomes	Type of training						
		Lecture	Seminar	Practical classes	Clinical classes	Simulations	E-learning	Other...
W01	B.W15.	X		X			X	
W02	C.W1.	X	X	X			X	
W03	C.W2.	X		X			X	
W04	C.W3.	X	X				X	
W05	C.W4.	X	X	X			X	
W06	C.W5.			X				
W07	C.W6.	X	X	X			X	
W08	C.W7.		X					
W09	C.W8.		X					
W10	C.W9.	X		X				

W11	C.W10.		X	X			X	
W12	C.W11.		X					
W13	C.W12.	X	X				X	
W14	E.W9.						X	
W15	E.W16.		X	X				
U01	C.U1.			X				
U02	C.U2.			X				
U03	C.U3.			X				
U04	C.U14.			X				
K01	K.5.			X				
K02	K.6.						X	

Table presenting TEACHING PROGRAMME			
No. of a teaching programme	Teaching programme	No. of hours	References to learning outcomes
Winter semester			
Seminars			
TK01	Basics of bacteria and fungi differentiation. Classification of microorganisms	4	C.W1./C.W4./C.W6.
TK02	Basics of chemotherapy of infections	2	C.W1./C.W3./C.W4./ C.W6./C.W9
TK03	Cocci: Gram-positive, Gram-negative, aerobes and anaerobes	1	C.W1./C.W3./C.W4./C.W6
TK04	Rods: Gram-positive, Gram-negative, aerobes and anaerobes	2	C.W1./C.W3./C.W4./C.W6
TK05	Rules of infection control program. Resistance mechanisms of microorganisms. Hygiene procedures.	1	C.W1./C.W3./C.W5./C.W6./C.W9.
TK06	Basics of the immune system function. Nonspecific and specific immunity.	4	C.W7./C.W8./C.W12.
TK07	Biological effects of immune response - immunodeficiencies, hypersensitivity, graft rejection	3	C.W8./C.W10./C.W11./ E.W16.
Seminars -e-learning			
TK01	Human microbiota.	1	B.W15./C.W1.- C.W4./ C.W6/C.W12.
TK02	Basics of virology.	1	C.W1./C.W3./C.W4./ C.W6.
TK03	Infection immunity, immunoprophylaxis, immunotherapy	1	C.W10./C.W12/ E.W9./K.6.
Practical classes			
TK01	Laboratory detection of bacteria and fungi	4	C.W1./C.W4./C.W6./C.U1./K.5.
TK02	Antimicrobial susceptibility testing	2	C.W9./C.U2./K.5.
TK03	Human microbiota. Cocci: Gram-positive, Gram-negative, aerobes and anaerobes	3	C.U1./C.U2./C.U3./K.5
TK04	Rods: Gram-positive, Gram-negative, aerobes and anaerobes	2	C.U1./C.U2./ C.U3./K.5.
TK05	Rules of infection control program. Resistance mechanisms of microorganisms. Hygiene procedures.	3	C.U2./C.U3./K.5.
TK06	Methods of studying of nonspecific and specific immuno response	4	C.W10/C.U2./C.U14./K.5.
TK07	Human Leucocyte Antigens (HLA) typing and matching	2	E.W16./ C.U14./K.5

Booklist
Obligatory literature:
1. Murray P.R. Basic Medical Microbiology, 2017, ISBN: 9780323476768 /or Murray P.R., Rosenthal K.S., Pfaller M.A. Medical Microbiology , 2015; ISBN: 0323299563
2. L. Samaranyake. Essential Microbiology for Dentistry- 2018, 5 th ISBN: 9780702074356
Supplementary literature:
1. R.A.Harvey, C.N.Cornelissen, B.D. Fisher. Lippincott's Illustrated Reviews: Microbiology, 2012, ISBN: 9781608317332
2. Notes on Medical Microbiology – K.N. Ward, K.C. McCartney, B. Thakker, 2008, ISBN 9780443102844
3. Updated handouts from teacher.

Student's workload	
Form of student's activity (in-class participation; activeness, produce a report, etc.)	Student's workload [h]
	Tutor
Contact hours with the tutor	40
Time spent on preparation to seminars/ practical classess	28
Time spent on reading recommended literature	25
Time spent on writing report/making project	-
Time spent on preparing to colloquium/ entry test	12
Time spent on preparing to exam	24
Other	-
Student's workload in total	129
ECTS credits for the subject (in total)	4
Remarks	

* 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...