Pomorski Uniwersytet Medyczny w Szczecinie

SYLLABUS of the MODULE (SUBJECT)

General Information

Module title: CYTOPHYSIOLOGY 2025/2026	
Module type	Obligatory
Faculty PMU	Faculty of Medicine
Major	Medicine
Level of study	long-cycle (S2J)
Mode of study	full-time studies provided in English
Year of studies, semester	1st year, semester 1
ECTS credits (incl. semester breakdown)	1
Type/s of training	**Lectures: 13** **Practical: 2** ∑15h
Form of assessment*	☒ graded assessment
Head of the Department/ Clinic, Unit	Assoc. Prof. Aleksandra Wilk, PhD
Name and contact details of the department	Katedra i Zakład Histologii i Embriologii al. Powstańców Wlkp. 72, 70-111 Szczecin tel. +91 466 1677 email: kzhe@pum.edu.pl
Tutor responsible for the module	Sylwia Rzeszotek, PhD sylwia.rzeszotek@pum.edu.pl 663-861-490
Department's/ Clinic's/ Unit's website	https://www.pum.edu.pl/studenci/informacje_z_jednostek/wm/katedra_i_zaklad_histologii_i_embriologii/
Language	English

Detailed information–

Module objectives		The primary goal of teaching **cytophysiology** is to integrate knowledge from basic sciences with clinical disciplines. It is essential to highlight the connection between cell biology topics and practical issues in medicine. Understanding the ultrastructure of individual cellular organelles, the molecular mechanisms taking place within them, and the regulation of metabolic processes occurring in a healthy cell will facilitate the comprehension of the etiopathogenesis of many diseases. At the root of many such conditions lie disturbances in the molecular structure of specific cellular components, which lead to dysfunctions in cells, tissues, organs, and entire systems. This approach to teaching cytophysiology will also provide students with a foundation for understanding the cellular and subcellular mechanisms of action of drugs and toxic substances.
Prerequisite /essential requirements	Knowledge	Basic knowledge of the structure and function of cells.
	Skills	----------
	Competences	Habit of self-education; teamwork.

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 can use methods of communication between cells and between the cell and the extracellular matrix and signal transduction pathways in the cell, as well as examples of disorders in these processes leading to the development of cancer and other diseases;	B. W16	O, ZAO
W02	processes: cell cycle, cell proliferation, differentiation and aging, apoptosis and necrosis and their importance for the functioning of the body;	B. W17	
W03	knows and understands functions and use of stem cells in medicine;	B.W18	
W04	has sufficicient knowledge and understanding of processes occurring during the aging of the body and changes in the functioning of organs associated with aging;	B.W21	
K1	is open for noticing and recognizing one's own limitations, self-assessing the deficits and educational needs;	K.5	
K2	is open to use objective sources of information;	K.7	

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.W16	X						
W02	B.W17	X						
W03	B.W18	X						
W04	B.W21	X						
K1	K.5			X				
K2	K.7			X				

Table presenting TEACHING PROGRAMME			
No. of a teaching programme	**Teaching programme**	**No. of hours**	**References to learning outcomes**
Winter semester			
Lectures, 13h			
TK01	Methods in histology.	1	K.5; K.7
TK02	Cell differentation.	1	B.W17
TK03	Cell cycle. Mitosis. Meiosis.	1	B.W17
TK04	Cell aging. Apoptosis. Necrosis.	1	B.W17, B.W21
TK05	Endo- and exocytosis. Pinocytosis. Receptors.	1	B.W16
TK06	Niches of stem cells.	1	B.W.18
TK07	Cancerogenesis.	1	B.W16
TK08	Tissue barriers.	1	B.W16
TK09	Cytophysiology and endocrine function of skin.	1	B.W16
TK10	Cytophysiology of endothelium.	1	B.W16

TK11	Cytoskeleton.	1	B.W16
TK12	Cell adhesion molceules.	1	B.W16
TK13	Cytophysiology – credit with a grade.	1	B.W16, B.W17, B.W21
Seminars			
	Not applicable.		
Practical classes, 2h			
TK01	Practical classes, presentation and open discussion.	2	K.5; K.7

Booklist
Obligatory literature:
1. Junqueira's Basic Histology: Text and Atlas, 17th Edition. Anthony L. Mescher.
2. Literature provided by teacher.
Supplementary literature:
1. Essential Cell Biology, Sixth Edition by Bruce Alberts.

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	15
Time spent on preparation to seminars/ practical classes	2
Time spent on reading recommended literature	5
Time spent on writing report/making project	3
Time spent on preparing to colloquium/ entry test	0
Time spent on preparing to exam	0
Other. Preparation for credit with a grade	5
Student's workload in total	30
ECTS credits for the subject (in total)	**1**
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 – multimedia presentation
other…