Pomorski Uniwersytet Medyczny w Szczecinie

SYLLABUS of the MODULE (SUBJECT)

General information

Module title: Pathophysiology	
Module type	Obligatory
Faculty PMU	Faculty of Medicine
Major	Medical
Specialty	-
Level of study	level II, long-cycle
Mode of study	full-time
Year of studies / semester	Year 3 / semester V, VI
ECTS credits	16
Type/s of training (Number of hours)	Lectures: 8h (8/0) Lectures e-learning: 4h (4/0) Seminars: 73h (40/33) Practical classes: 55h (30/25) Σ:140h
Form of assessment*	☐ graded assessment: ☐ descriptive ☐ test ☐ practical ☐ oral ☐ non-graded assessment ☒ final examination: ☐ descriptive ☒ test ☐ practical ☐ oral
Head of the Department	Prof. dr hab. n. med. Bogusław Machaliński
Tutor responsible for the module	Dr hab. n. med. Magdalena Baśkiewicz-Hałasa/ magdalena.baskiewicz.halasa@pum.edu.pl/914661676
Department's Name	Katedra Fizjopatologii, Hematologii i Transplantologii, Zakład Patologii Ogólnej Al. Powstańców Wlkp. 72, 70-111 Szczecin 91 466 1546
Department's website	https://www.pum.edu.pl/wydzialy/wydzial-medycyny-i-stomatologii/zaklad-patologii-ogolnej
Language	English

* where applicable, replace ☐ na ☒

Detailed information

Module objectives		1. Transfer of knowledge about the functioning of organs, body systems in the state of disease 2. Defining the state of disease, description of its determinants, regulatory mechanisms and compensating its disorders 3. Providing knowledge enabling the understanding of etiology, pathogenesis and symptoms of disease in individual organs and systems 4. Using the acquired knowledge to discuss specific disease cases in terms of etiology, pathogenesis and observed symptoms, critical analysis
Prerequisite /essential requirements	Knowledge	Knowledge of physiological aspects of the human body, knowledge of biochemical aspects of the human body, knowledge of basic physiological and biochemical concepts
	Skills	Knows how to interpret numerical data on basic physiological and biochemical variables, uses internet databases,
	Competences	Has the habit and ability to self-education, the ability to work in a team, acceptance of current ethical standards

Description of the learning outcomes			
No. of learning outcome	**Student, who has passed the module knows /is able to /can:**	**SYMBOL (referring to) of the standards**	**Method of verification of learning outcomes***
W01	Defines the basic mechanisms of cell and tissue damage	C.W27	O, K, ET
W02	Characterizes the clinical course of specific and non-specific inflammation and the processes of tissue and organ regeneration	C.W28	O, K, ET
W03	Defines the pathophysiology of shock, with particular emphasis on differentiating the causes of shock and multiple organ failure	C.W29	O, K, ET
W04	Determines the etiology of hemodynamic disorders, regressive changes and progressive changes	C.W30	O, K, ET
W05	Determines the consequences of developing pathological changes for topographically adjacent organs	C.W32	O, K, ET
W06	Indicates external and internal pathogenic factors, modifiable and non-modifiable	C.W33	O, K, ET
W07	Characterizes the clinical forms of the most common diseases of individual systems and organs, metabolic diseases and disorders of water-electrolyte balance, hormonal metabolism and acid-base balance	C.W34	O, K, ET

W08	Determines the impact of oxidative stress on cells and its importance in the pathogenesis of diseases and in the aging process	C.W47	O, K, ET
W09	Determines the consequences of vitamin or microelement deficiency and their excess in the body	C.W48	O, K, ET
W10	Characterizes the enzymes involved in digestion, the mechanism of hydrochloric acid production in the stomach, the role of bile, the process of absorption of digestive products	C.W49	O, K, ET
W11	Defines the consequences of improper nutrition, including long-term fasting, eating too much and using an unbalanced diet, as well as digestion and absorption disorders	C.W50	O, K, ET
W12	Explains the mechanism of action of hormones	C.W51	O, K, ET
U01	Relates symptoms of tissue and organ damage to clinical symptoms of disease, history, and laboratory test results	C.U11	O, K, ET
U02	Analyses reactive, defensive and adaptive phenomena as well as regulation disorders caused by the etiological factor	C.U12	O, K, ET
U03	Describes changes in the functioning of the body in a situation of homeostasis disturbance, in particular defines its integrated response to physical exertion, exposure to high and low temperatures, loss of blood or water, sudden verticalization, transition from sleep to wakefulness	C.U20	O, K, ET
K01	Observes and recognizes own limitations and performs self-assessment of educational deficits and needs	K.5	O
K02	Promotes pro-health behaviors	K.6	O
K03	Uses objective sources of information	K.7	O

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 forms
W01	C.W27	x	x					
W02	C.W28	x	x					
W03	C.W29	x	x					
W04	C.W30	x	x					
W05	C.W32	x	x					
W06	C.W33	x	x					
W07	C.W34	x	x					
W08	C.W47	x	x					
W09	C.W48	x	x					
W10	C.W49	x	x					
W11	C.W50	x	x					
W12	C.W51	x	x					
U01	C.U11			x				
U02	C.U12			x				
U03	C.U20			x				
K01	K.5		x	x				
K02	K.6		x	x				
K03	K.7		x	x				

Table of TEACHING PROGRAMME			
No. of a teaching programme	Teaching programme	No of hours	References to learning outcomes
Winter semester			
	Lectures / Lectures in e-learning	**8/4**	
TK01	Immunopathology	6	C.W28, C.W33
TK02	Pathophysiology of Vitamin D3 deficiency	1	C.W34, C.W48, C.W50, C.W51
TK03	Cell therapies – selected topics	1	C.W33, C.W34, C.W47, C.W51
TK04	Aging of the immune system	1	C.W28, C.W33, C.W47
TK05	Angiogenesis in tumors	1	C.W32, C.W34
TK06	COVID-19 disease – selected topics	1	C.W28, C.W33
TK07	How to stop the aging process	1	C.W33, C.W34
	Seminars	**40**	
TK01	Pathophysiology of disorders of proteins metabolism	2	C.W33, C.W34, K.5, K.6, K.7
TK02	Pathophysiology of disorders of purines metabolism	1	C.W33, C.W34, C.W50, K.5, K.6, K.7
TK03	Pathophysiology of disorders of carbohydrates metabolism	4	C.W33, C.W34, C.W47, C.W50, C.W51, K.5, K.6, K.7

TK04	Pathophysiology of disorders of lipids metabolism	4	C.W33, C.W34. C.W50, C.W51. K.5, K.6, K.7
TK05	Inflammation	5	C.W28, C.W32, C.W33, K.5, K.6, K.7
TK06	Immunopathology	4	C.W27, C.W28, C.W33, K.5, K.6, K.7
TK07	Pathophysiology of the cardiovascular system	8	C.W28, C.W29, C.W30, C.W32, C.W34, C.W50, C.W51, K.5, K.6, K.7
TK08	Pathophysiology of the cerebrovascular system	4	C.W29, C.W33, C.W34, C.W50, K.5, K.6, K.7
TK09	Rheumatoid diseases	4	C.W28, C.W33, C.W34, K.5, K.6, K.7
TK10	Protein and caloric malnutrition	4	C.W34, C.W50
	Ćwiczenia	**30**	
TK01	Health and disease. Disease as a disturbance of system homeostasis - introduction to pathophysiology	4	C.U11, C.U12, K.5, K.6, K.7
TK02	Disorders of protein and purine metabolism – clinical cases	1	C.U11, C.U12, K.5, K.5
TK03	Principles of performing oral glucose tolerance test (OGTT)	4	C.U11, K.5, K.6, K.7
TK04	Metabolic syndrome, physical activity	4	C.U11, K.5, K.6, K.7
TK05	Inflammation – practical class	5	C.U11, C.U12, K.5, K.6, K.7
TK06	Circulatory system - clinical cases, SCORE risk card	8	C.U11, C.U12, C.U20, K.5, K.6, K.7
TK07	Summary of topics covered in the first semester	4	C.U11, K.5, K.7
Summer semester			
	Seminars	**33**	
TK01	Vitamins	4	C.W34, C.W48, C.W50, K.5, K.6, K.7
TK01	Pathophysiology of urinary tract disorders	4	C.W28, C.W32, C.W33, C.W34, C.W48, K.5, K.6, K.7
TK02	Pathophysiology of gastrointestinal tract disorders	8	C.W28, C.W32, C.W33, C.W34, C.W48, C.W49, C.W50, C.W51, K.5, K.6, K.7
TK03	Pathophysiology of hematopoietic system disorders	4	C.W33, C.W34, C.W48, C.W50, C.W51, K.5, K.6, K.7
TK04	Pathophysiology of endocrine system disorders	7	C.W34, C.W48, C.W51, K.5, K.6, K.7
TK05	Pathophysiology of respiratory system disorders	4	C.W28, C.W33, C.W34, K.5, K.6, K.7

TK06	Pathophysiology of pain	2	C.W34, C.W51, K.5, K.6, K.7
	Practical classes	**25**	
TK01	Pathophysiology of gastrointestinal tract disorders - student presentations	4	C.U11, C.U12, K.5, K.6, K.7
TK02	Pathophysiology of hematopoietic system disorders - clinical cases; flow cytometer - introduction to the method, application in scientific research and medicine, with particular emphasis on application in hematology	8	C.U11, C.U12, C.U20, K.5, K.6, K.7
TK03	Pathophysiology of endocrine system disorders – clinical cases	1	C.U11, C.U12, K.5, K.6, K.7
TK04	Pathophysiology of respiratory system and urinary tract – clinical cases	4	C.U11, C.U12, K.5, K.6, K.7
TK05	Aging of the organism – selected issues	4	C.U11, C.U20, K.5, K.6, K.7
TK06	Pathophysiology Course Summary – selected topics	4	C.U11, K.5, K.7

Booklist:
Obligatory literature:
1. **Robbins and Kumar's Basic Pathology, 11th Edition.** Elsevier, 2023.
2. **Robbins & Cotran Pathologic Basis of Disease, 10th Edition.** Elsevier, 2020.
Supplementary literature:
1. **Robbins Pathology (10 books), eBook Edition.** Elsevier, 2014-2023.
2. **Robbins and Cotran Atlas of Pathology, 4th Edition.** Elsevier, 2020.

Student's workload	
Form of student's activity (participation in classes, activity, preparation of a report, etc.)	Student's workload [h]
	In the tutor's opinion
Contact hours with the tutor	140
Time spent on preparation to seminars / practical classess	80
Time spent on reading recommended literature	50
Time spent on writing report / making project, etc.	-
Time spent on preparing to colloqium / entry test	70
Time spent on preparing to exam	90
Other...	-
Student's workload in total	430
ECTS credits	**16**
Notes	

* Selected examples of methods of assessment:
EP - written examination
EU - oral examination
ET - test examination
EPR - practical examination
K - colloqium
R - report
S - practical skills assessment
RZĆ - 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…