UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN

Course sylabus – part A
Pathophysiology

48SJO-PATHOPH
2025
ECTS: 6.00

SUBJECT MATTER CONTENT:

Classes
1. Pathophysiology of nervous system diseases.
2. Water-electrolyte and acid-base balance.
3. Pathophysiology of haematopoietic system diseases.
4. Pathophysiology of cardiovascular diseases.
5. Pathophysiology of cardiovascular diseases – ECG.
6. Pathophysiology of respiratory diseases.
7. Pathophysiology of digestive diseases – gastrointestinal tract and pancreas.
8. Pathophysiology of the digestive system – liver.
9. Pathophysiology of diseases of the excretory system.
10. Pathophysiology of diseases of the endocrine system.

Lecture
1. General pathophysiology, part 1.
2. General pathophysiology, part 2.
3. Pathophysiology of shock.
4. Pathophysiology of cancer.
5. Autoimmunity and autoimmune diseases.
6. Pathophysiology of cardiovascular diseases, part 1.
7. Pathophysiology of cardiovascular diseases, part 2.
8. Pathophysiology of respiratory diseases.
9. Pathophysiology of gastrointestinal diseases.
10. Pathophysiology of pain.
11. Pathophysiology of kidney diseases.
12. Pathophysiology of the ageing process.
13. Diseases of the endocrine system.
14. Metabolic disorders – carbohydrate metabolism disorders, obesity, metabolic syndrome.

Seminar
1. Pathophysiology of bone diseases. Cytokine storm. Macrophage activation syndrome.
2. Pathophysiology of muscle diseases.
3. Pathophysiology of nervous system diseases.
4. Pathophysiology of haematopoietic system diseases.
5. Pathophysiology of cardiovascular diseases.
6. Pathophysiology of cardiovascular diseases – ECG.
7. Pathophysiology of respiratory diseases.
8. Pathophysiology of digestive diseases – gastrointestinal tract and pancreas.
9. Pathophysiology of digestive system diseases – liver.

Legal acts specifying learning outcomes: 311/2023 (Medicine),
Status of the course: None
Group of courses: None
Discipline: Medicine
Classes:
Lecture (28 h)
Seminar (27 h)
Classes (20 h)
Step: Kierunek lekarski trzeci rok (oferta w jęz. angielskim dla obcokrajowców)
Program: Medicine
Form of studies:full-time
Level of studies: uniform master's studies

Introductory subject: anatomy, physiology, cytophysiology, histology with embryology, biochemistry, immunology

Prerequisites: Achievement of learning outcomes in terms of knowledge, skills and competences from previous years of study.

Coordinators:

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10. Pathophysiology of excretory system diseases.
11. Pathophysiology of endocrine system diseases.

TEACHING OBJECTIVE:
Explanation and discussion of functional changes in disease, mechanisms of disease development and systemic consequences resulting from disease. Students should learn and use basic terms used in pathophysiology, know the basics of the etiopathogenesis of diseases of individual systems, know the pathomechanism of the consequences of disturbed organ and system function, and be able to apply the acquired knowledge in practice.

DESCRIPTION OF THE LEARNING OUTCOMES OF THE COURSE IN RELATION TO THE DESCRIPTION OF THE CHARACTERISTICS OF THE SECOND LEVEL LEARNING OUTCOMES FOR QUALIFICATIONS AT LEVELS 6-8 OF THE POLISH QUALIFICATION FRAMEWORK IN RELATION TO THE SCIENTIFIC DISCIPLINES AND THE EFFECTS FOR FIELDS OF STUDY:

Symbols for outcomes related to the discipline:

Symbols for outcomes related to the field of study:
K.5.+, K.7.+, K.8.+, KA7_KR1+, KA7_KR2+, KA7_UW1+, KA7_UO1+, C.U11.+, C.U20.+, B.W18.+, C.W23.+, C.W24.+, C.W28.+, C.W29.+, C.W47.+, C.W34.+, C.W50.+, B.W25.+, C.W48.+

LEARNING OUTCOMES (Knowledge, Skills, Social competence):

W1	Graduates know and understand: processes: processes: cell cycle, proliferation, differentiation and ageing of cells, apoptosis and necrosis, and their significance for the functioning of the body; the impact of oxidative stress on cells and its significance in the pathogenesis of diseases and in ageing processes; types of hypersensitivity reactions, types of immunodeficiency and the basics of immunomodulation; issues in cancer immunology; the clinical course of specific and non-specific inflammation and the processes of tissue and organ regeneration; the relationship between factors disrupting the balance of biological processes and physiological and pathophysiological changes; definition and pathophysiology of shock, with particular emphasis on the differentiation of causes of shock and multiple organ failure; clinical forms of the most common diseases of individual systems and organs, metabolic diseases, and water-electrolyte, hormonal, and acid-base balance disorders; the consequences of vitamin or mineral deficiency and excess in the body; the consequences of malnutrition, including prolonged starvation, overeating and an unbalanced diet, as well as disorders of digestion and absorption of digestive products.
U1	Graduates are able to: recognise and discuss the pathomechanisms of the most common diseases based on selected systems and organs; observe and implement the principles of academic, professional and social professionalism; correlate images of tissue and organ damage with clinical symptoms of disease, medical history and laboratory test results; describe changes in the functioning of the body in a situation of homeostasis disturbance, in particular determine its integrated response to physical exertion, exposure to high and low temperatures, blood or water loss, sudden verticalisation,

transition from sleep to wakefulness.

K1	Graduates are prepared to: recognise and acknowledge their own limitations and self-assess their educational deficits and needs; use objective sources of information; formulate conclusions from their own measurements or observations; observe and apply the principles of academic and professional ethics and professional image, academic, social and professional professionalism; inspire, lead and collaborate in an interdisciplinary team, in particular during PBL (Problem Based Learning) classes.

TEACHING FORMS AND METHODS:

Classes-['W1', 'U1', 'K1']-Analysis of pathophysiological mechanisms based on five clinical cases, which students will have to work on in teams of two based on the subjective and objective examination received, as well as additional tests, and explain during the class.
Lecture-['W1', 'K1']-Lecture with multimedia presentation.
Seminar-['W1', 'U1', 'K1']-Study of mechanisms in general and clinical pathophysiology in groups of 20-30 people.

FORM AND CONDITIONS OF VERIFYING LEARNING OUTCOMES:

Seminar-(Part in the discussion)-['W1', 'U1', 'K1']-Participation in discussions on issues related to general and clinical pathophysiology.
Classes-(Evaluation of the work and cooperation in the group)-['W1', 'U1', 'K1']-Teamwork on discussing assigned clinical cases.
Classes-(Written test)-['W1', 'U1']-Passing the course is based on the number of points obtained from ‘short-tests’ (5 test or descriptive questions), conducted during each class and graded on a scale of 2-5. 'Short-test' grades are converted into points in accordance with the Course Regulations
Lecture-(Esey)-['W1', 'U1']-Students who miss the lecture will have to write an additional essay on the lecture content.
Seminar-(Colloquium test)-['W1', 'U1']-The seminar will be graded based on the total number of points obtained from the tests. There will be three true/false tests during the semester. Each test consists of 16 questions with five answers. A minimum of 168 points is required to pass the seminar. The final grade is based on the total number of points obtained from the three tests, in accordance with the Course Regulations.
Lecture-(Written exam)-['W1', 'U1']-The examination takes the form of a single-choice test. The test consists of 120 questions with 4 answers, only 1 of which is correct. A minimum of 72 points (60%) is required to pass the examination. Students who have passed lectures, seminars and practical classes are admitted to the examination.
Classes-(Write-up)-['W1', 'U1']-Preparation of a clinical case study in teams of two based on the subjective and objective examination results and additional tests, and discussion of the case based on the Student's Worksheet.

Literature:

1. ***„Pathophysiology of herat disease. Sixth edition.”,***, L. S. Lilly, Wolters Kluwer, 2025, Strony: 79-117, Tom: (literatura podstawowa)

2. ***„Color Atlas of Pathophysiology. Third edition."***, S. Silbernagl, F. Lang, Thieme, 2016, Strony: , Tom: (literatura podstawowa)

3. ***„Pathophysiology. Seveth edition."***, J. L. Banasik, Elsevier, 2021, Strony: , Tom: (literatura podstawowa)

4. ***"Pathophysiology a practical approach. Third ediotion."***, L. Story, Jones Bartlett Learning, 2018, Strony: , Tom: (literatura uzupełniająca)

5. ***„Pathophysiology of Disease: An Introduction to Clinical Medicine. Eight Edition."***

D. Hammer, S. J. McPhee, McGraw-Hill Education, 2019, Strony: , Tom: (literatura uzupełniająca)

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Detailed description of ECTS credits awarded - part B
Pathophysiology

48SJO-PATHOPH
2025
ECTS: 6.00

The number of ECTS credits awarded consists of:

1. Contact hours with the academic teacher:

- participation in: Lecture	28 h
- participation in: Seminar	27 h
- participation in: Classes	20 h
- consultation	4 h
	Total: 79 h

2. Independent work of a student:

preparation for tests	17.00 h
self-education	17.00 h
preparation for classes	12.00 h
preparation for the final exam	25.00 h
	Total: 71.00 h

Total (contact hours + independent work of a student): 150.00 h

1 ECTS credit = 25-30 h of an average student's work, number of ECTS,
ECTS Points = 150.00 h : 25 h/ECTS = **6.00** ECTS

Average: 6.00 ECTS

- including the number of ECTS credits for contact hours with the direct participation of an academic teacher	3.16 ECTS
- including the number of ECTS credits for hours of independent work of a student	2.84 ECTS