Appendix No. 1.5 to the Resolution No. 7/2023
of the Rector of the University of Rzeszów

SYLLABUS

REGARDING THE QUALIFICATION CYCLE FROM 2024 TO 2030
ACADEMIC YEAR 2025/2026

1. BASIC COURSE/MODULE INFORMATION

Course/Module title	Pathophysiology
Course/Module code *	Pf
Faculty (name of the unit offering the field of study)	College of Medical Sciences, Institute of Medical Sciences
Name of the unit running the course	Department of Human Pathophysiology
Field of study	Medical Direction
Qualification level	Uniform Master's Studies
Profile	Practical
Study mode	Stationary
Year and semester of studies	Year II, Semester 4 and 5
Course type	Obligatory
Language of instruction	English
Coordinator	Prof. dr hab. n. med. Maciej Machaczka
Course teachers	Prof. dr hab. n. med. Maciej Machaczka; Dr hab. n. med. Mariusz Dąbrowski, prof. UR; Dr hab. n. med. Łukasz Błażowski, prof. UR; Dr hab. n. med. Agnieszka Gala-Błądzińska, prof. UR; Dr hab. n. med. Piotr Futyma, prof. UR; Dr n. med. Tomasz Stepek; Dr n. med. Alicja Markuszewska-Kuczyńska; Lek. med. Elżbieta Łach-Pasko

* - as agreed at the faculty

1.1.Learning format – number of hours and ECTS credits

Semester (no.)	Lectures	Classes	Laboratories	Seminars	Practical classes	Internships	others	**ECTS credits**
3	30	25	-	9	-	-	-	5
4	30	20	-	6	-	-	-	5

1.2. Course delivery methods

☒ conducted in a traditional way
☒ involving distance education methods and techniques

1.3. Course/Module assessment: EXAMINATION

2. PREREQUISITES

Knowledge of human anatomy, histology, physiology, cell biology, genetics, immunology and biochemistry

3. OBJECTIVES, LEARNING OUTCOMES, COURSE CONTENT, AND INSTRUCTIONAL METHODS

3.1. Course/Module objectives

O1	The aim of education is to familiarize the student with the knowledge of the relationship between the action of pathogenic factors causing the disturbance of homeostasis and the development of the disease and its clinical symptoms
O2	Explaining the differences in the functions of the system under the conditions of the disease, learning the etiopathogenesis of the most important diseases and the pathophysiological foundations of diagnostic and therapeutic procedures
O3	Integrating basic medical disciplines and linking them with clinical education

3.2. COURSE/MODULE LEARNING OUTCOMES

Learning Outcome	The description of the learning outcome defined for the course/module	Relation to the degree programme outcomes
KNOWLEDGE: THE GRADUATE KNOWS AND UNDERSTANDS		
LO_01	the clinical course of specific and nonspecific inflammation and the processes of tissue and organ regeneration;	**C.W23.**
LO_02	etiology, mechanisms and consequences of hemodynamic disorders;	**C.W24.**
LO_03	organ pathology, macro- and microscopic pathomorphological changes and clinical consequences along with pathomorphological nomenclature;	**C.W25.**
LO_04	pathogenesis of diseases, including genetic and environmental determinants;	**C.W26.**
LO_05	pathophysiology and clinical forms of the most common diseases of individual systems and organs, metabolic diseases and disorders of water-electrolyte, hormonal and acid-base metabolism;	**C.W27.**
LO_06	the impact of oxidative stress on cells and its importance in the pathogenesis of diseases	**C.W38.**

	and in the processes occurring during the aging of the organism;	
LO_07	consequences of deficiency and excess of vitamins and minerals;	**C.W39.**
LO_08	causes and consequences of poor nutrition, including long-term insufficient and excessive consumption of food and an unbalanced diet, as well as digestive and absorption disorders;	**C.W40.**
LO_09	basics of radiotherapy;	**C.W41.**
SOCIAL COMPETENCES: THE GRADUATE IS READY FOR		
LO_10	noticing and recognizing one's own limitations, making self-assessment of deficits and educational needs;	**K.05**
LO_11	formulating conclusions from your own measurements or observations;	**K.08**
LO_12	accepting responsibility for decisions made in the course of professional activity, including those relating to one's own safety and the safety of others.	**K.11**

3.3. Course content

A. Lectures

Content outline
Health and disease. Course of illness. Disease prevention. Pathophysiological terminology
Outline of cell pathophysiology. Disorders of cell differentiation and proliferation
Inflammation, infection, tissue regeneration. Excessive inflammatory response.
Basic signs and symptoms
Genetic and developmental disorders. Immune disorders
Thermoregulation disorders. Fever. Hypothermia and hyperthermia
Pathophysiology of aging
Circulatory system pathophysiology
Disorders of the hormonal regulation of calcium and phosphate metabolism and the secretion of sex hormones
Digestive system pathophysiology
Hormonal regulation and metabolism disorders. Pathophysiology of the endocrine system
Influence of environmental factors on the human body
Neoplasms
An outline of the problem of rare diseases
Hematopoietic cell transplantation and CAR-T
Disturbances of hemostasis, hematopoiesis and lymphatic system

Pathophysiology of life threatening conditions. Acute respiratory failure. Acute kidney injury
Stroke – symptoms, causes, methods of treatment. Acute life-threatening conditions of traumatic origin
Disorders of secretion and excretion
Acid-base, water-electrolyte and calcium-phosphate imbalances
Pathophysiology of the respiratory system. Allergic diseases, anaphylaxis, food allergy, atopic dermatitis
Diabetes and eating disorders

B. Classes, laboratories, seminars, practical classes

Content outline
Circulatory system pathophysiology. Emergencies in cardiology
Pathophysiology of the digestive system, liver and pancreas
Central nervous system pathophysiology
Pathophysiology of the endocrine system
Pathophysiology of the respiratory system
Pathophysiology of the immune system and allergic diseases
Pathophysiology of the urinary system
Pathophysiology of connective tissue diseases
Pathophysiology of the hematopoietic system and coagulation disorders
Disorders of the acid-base and water-electrolyte balance
Diabetes, eating disorders, metabolic syndrome, protein metabolism disorders, dyslipidemias, obesity
Peripheral nervous system, thermoregulation, sense organs
Selected disorders of the reproductive system. Pregnancy, childbirth, postnatal period

3.4. Methods of Instruction

Lectures: problem lecture, lecture with multimedia presentation, distance learning methods
Exercises: text analysis with discussion, project method (research, implementation, practical project), group work (task solving, discussion), didactic games, distance learning methods
Seminars: lecture with multimedia presentation, literature analysis, distance learning methods
Student's own work: work with a book, article, teacher's material

4. Assessment techniques and criteria

4.1 Methods of evaluating learning outcomes

Learning outcome	Methods of assessment of learning outcomes (e.g. test, oral exam, written exam, project, report, observation during classes)	Learning format (lectures, classes,...)

LO-01 – LO-09	WRITTEN ASSESSMENT, TEST, OBSERVATION DURING CLASSES, ORAL EXAM	LECTURES, SEMINARS, CLASSES
LO-10 – LO-12	WRITTEN ASSESSMENT, TEST, OBSERVATION DURING CLASSES, ORAL EXAM	SEMINARS, CLASSES

4.2 Course assessment criteria

Oral exam on the entire course (lectures, seminars, classes, students own work) at the end of the course teaching.

Student's attendance in scheduled activities is obligatory.

Lectures and seminars

Written (basic exam session: single choice test, 30 questions) or oral credit.

Knowledge assessment (EK_01-EK_07):

5.0 - student shows knowledge of education content at the level of 93–100%
4.5 - student shows knowledge of education content at the level of 85–92%
4.0 - student shows knowledge of education content at the level of 77–84%
3.5 - student shows knowledge of education content at the level of 69–76%
3.0 - student shows knowledge of education content at 60–69%
2.0 - sudent shows knowledge of education content below 60%

Laboratory classes:

1. Full class attendance.
2. Written (basic exam session: single choice test, 50 questions) or oral test from the thematic module

5.0 – student actively participates in classes, is well prepared to classes, correctly interprets relationships and draws the right conclusions, he flawlessly performs simple functional tests assessing the human body

4.5 – student actively participates in classes, with a little help of the teacher, he correctly interprets occurring phenomena, performs simple functional tests assessing the human body with a little help of the teacher

4.0 – student actively participates in classes, with greater help of the teacher, is corrected by the teacher, he is not always able to solve the problem by himself and perform simple functional tests assessing the human body

3.5 – student participates in classes, his knowledge does not allow for a holistic presentation of the discussed problem, without the help of the teacher draws wrong conclusions and incorrectly performs simple functional tests assessing the human body

3.0 – student participates in classes, he formulates conclusions that require correction by the teacher, he makes minor mistakes and does not fully understand the cause-and-effect

relationships, often incorrectly performs simple functional tests assessing the human body 2.0 – student passively participates in classes, his statements are substantive incorrect, he does not understand the problems and cannot perform simple functional tests assessing the human body

5. Total student workload needed to achieve the intended learning outcomes – number of hours and ECTS credits

Activity	Number of hours
Course hours	120
Other contact hours involving the teacher (consultation hours, examinations)	10
Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.)	140
Total number of hours	270
Total number of ECTS credits	10

* One ECTS point corresponds to 25-30 hours of total student workload

6. Internships related to the course/module

Number of hours	-
Internship regulations and procedures	-

7. Instructional materials

Compulsory literature: 1. Robbins Basic Pathology. By Vinay Kumar, Abul Abbas and Jon Aster. Elsevier, Philadelphia, 2018. 2. Pathophysiology. By Ivan Damjanov. Saunders, New York, 2009. 3. Handouts delivered by teachers.
Complementary literature: 1. Color Atlas of Pathophysiology. By Stefan Silbernagl and Florian Lang. Thieme, Stuttgart, 2016. 2. Guyton and Hall. Textbook of Medical Physiology. By John Hall. Elsevier, Philadelphia, 2016. 3. Database UpToDate® https://www.uptodate.com/contents/search 4. Recommended articles from peer-reviewed scientific medical journals

Approved by the Head of the Department or an authorised person

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