

SYLLABUS

concerning the cycle of education 2020-2026

(date range)

**1.1. BASIC INFORMATION CONCERNING THIS SUBJECT / MODULE**

|                                            |                                                                                                                                                     |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Subject / Module                           | <b>Pathomorphology</b>                                                                                                                              |
| Course code / module *                     | <b>Pf/B</b>                                                                                                                                         |
| Faculty of (name of the leading direction) | <b>Medical College of Rzeszów University</b>                                                                                                        |
| Department Name                            | <b>Institute of Experimental and Clinical Medicine</b>                                                                                              |
| Field of study                             | <b>medical direction</b>                                                                                                                            |
| Level of education                         | <b>uniform master's studies</b>                                                                                                                     |
| Profile                                    | <b>practical</b>                                                                                                                                    |
| Form of study                              | <b>stationary / extramural</b>                                                                                                                      |
| Year and semester                          | <b>year III, semester V</b>                                                                                                                         |
| Type of course                             | <b>obligatory</b>                                                                                                                                   |
| Coordinator                                | <b>Dr hab. n. med. Maciej Machaczka, prof. UR</b>                                                                                                   |
| First and Last Name of the Teacher         | <b>Dr med. Łukasz Błażowski, Dr med. Agnieszka Gala-Błądzińska, Dr med. Mariusz Dąbrowski, Dr med. Tomasz Stepek, Dr hab. med. Maciej Machaczka</b> |

\* - According to the resolutions of the Faculty of Medicine

**1.2. Forms of classes, number of hours and ECTS**

| Lecture | Exercise | Conversation | Laboratory | Seminar | ZP | Practical | Self-learning | Number of points ECTS |
|---------|----------|--------------|------------|---------|----|-----------|---------------|-----------------------|
| 30      | 25       | -            | -          | 6       | -  | -         | -             | 5                     |

**1.3. The form of class activities**

☒ classes are in the traditional form

☐ classes are implemented using methods and techniques of distance learning

**1.4. Examination Forms / module (exam, credit with grade or credit without grade)**

**2. REQUIREMENTS**

Knowledge of human physiology, anatomy, cell biology and biochemistry

**3. OBJECTIVES, OUTCOMES, AND PROGRAM CONTENT USED IN TEACHING METHODS**

### 3.1. Objectives of this course/module

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C1 | The aim of education is to familiarize the student with the knowledge on the relationship between the effects of pathogenic factors that cause homeostasis disorder and the development of the disease and its clinical symptoms. Explaining differences in the functions of the system in conditions of the disease, understanding the etiopathogenesis of the most important diseases and the pathophysiological basis of diagnostic and therapeutic procedures. The premise of teaching pathophysiology is to integrate basic medical disciplines and link them to clinical training. |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 3.2 OUTCOMES FOR THE COURSE / MODULE (TO BE COMPLETED BY THE COORDINATOR)

| EK (the effect of education) | The content of the learning effect defined for the subject (module)                                                                                                                                                                                                     | Reference to directional effects (KEK) |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| EK_01                        | knows the consequences of improper nutrition, including long-term starvation, over-abundant meals and the use of an unbalanced diet                                                                                                                                     | B.W19                                  |
| EK_02                        | knows the consequences of a deficiency of vitamins or minerals and their excess in the body                                                                                                                                                                             | B.W20                                  |
| EK_03                        | knows the basic quantitative parameters describing the efficiency of individual systems and organs, including: the scope of the norm and demographic factors affecting the value of these parameters                                                                    | B.W29                                  |
| EK_04                        | knows issues in the field of detailed organ pathology, macro and microscopic images and the clinical course of pathomorphological changes in particular organs                                                                                                          | B.W30                                  |
| EK_05                        | describes changes in the functioning of the body in a situation of homeostatic disorder, in particular, defines its integrated response to physical effort, exposure to high and low temperature, blood or water loss, sudden standing, transition from sleep to waking | B.U07                                  |
| EK_06                        | performs simple functional tests assessing the human body as a stable regulation system (stress tests, stress tests); interprets numerical data on basic physiological variables                                                                                        | B.U08                                  |

### 3.3 CONTENT CURRICULUM (filled by the coordinator)

#### A. Lectures

| Course contents                                 |
|-------------------------------------------------|
| Introduction to pathophysiology                 |
| Outline of cell pathophysiology                 |
| Inflammation, infection and tissue regeneration |

|                                                                            |
|----------------------------------------------------------------------------|
| Basic disease symptoms                                                     |
| Genetic and developmental disorders                                        |
| Immune disorders                                                           |
| Disorders of cell differentiation and proliferation                        |
| Disorders of nerve conduction and the functioning of the senses            |
| Disturbances of acid-base, water-electrolyte and calcium-phosphate balance |
| Pathophysiology of life-threatening conditions                             |
| Pathophysiology of the circulatory system                                  |
| Pathophysiology of the respiratory system                                  |

## B. Exercises

|                                                                         |
|-------------------------------------------------------------------------|
| <b>Course contents</b>                                                  |
| Pathophysiology of the digestive system, liver and pancreas             |
| Pathophysiology of the central nervous system                           |
| Pathophysiology of the internal secretion system part 1 and part 2      |
| Pathophysiology of the urinary system                                   |
| Pathophysiology of connective tissue diseases                           |
| Pathophysiology of the hematopoietic system                             |
| Diabetes, metabolic syndrome, dyslipidemia, obesity                     |
| Pathophysiology of sensation and pain, thermoregulation, sensory organs |

## C. Seminars

|                                          |
|------------------------------------------|
| <b>Course contents</b>                   |
| Pathophysiology of the digestive system. |
| Diabetes. Eating disorders               |

## 3.4 TEACHING METHODS

**Lecture:** lecture with multimedia presentation

**Exercises:** practical exercises in the laboratory, group work, literature analysis

**Seminars:** lecture with multimedia presentation, group work, literature analysis

**Student's own work:** work with a book, scientific article

## 4 METHODS AND EVALUATION CRITERIA

#### 4.1 Methods of verification of learning outcomes

| Symbol of effect | Methods of assessment of learning outcomes (Eg.: tests, oral exams, written exams, project reports, observations during classes) | Form of classes   |
|------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------|
| EK_01-<br>EK_04  | Test                                                                                                                             | Lecture, Seminars |
| EK_05-<br>EK_06  | Practical pass                                                                                                                   | Exercises         |

#### 4.2 Conditions for completing the course (evaluation criteria)

##### **Lectures and seminars**

Written or oral test

##### **Knowledge assessment (EK\_01-EK\_04):**

5.0 - has knowledge of each of the contents of education at the level of 90% -100%

4.5 - has knowledge of each of the content of education at the level of 84% -89%

4.0 - has knowledge of each of the content of education at the level of 77% -83%

3.5 - has knowledge of each of the content of education at the level of 70% -76%

3.0 - has knowledge of each of the content of education at the level of 60% -69%

2.0 - has knowledge of each of the contents of education below 60%

##### **Exercises:**

##### **Skill assessment (EK\_05, EK\_06):**

5.0 - the student actively participates in the classes, is well prepared, correctly interprets the dependencies and is able to draw the right conclusions, performs simple functional tests assessing the human body without errors

4.5 - the student actively participates in the classes, with little help from the teacher, correctly interprets the occurring phenomena, performs simple functional tests assessing the human body with a small teacher's help

4.0 - the student actively participates in classes, with more help from the teacher, is improved, not always able to solve the problem and perform simple functional tests assessing the human body

3.5 - the student participates in classes, his scope of preparation does not allow for a comprehensive presentation of the discussed problem, he draws incorrect conclusions without help and incorrectly performs simple functional tests assessing the human body

3.0 - the student participates in classes, formulates conclusions requiring correction from the teacher, but commits minor mistakes, not fully understanding the causal relationships and causality, often incorrectly performs simple functional tests assessing the human body

2.0 - the student passively participates in the classes, the statements are incorrectly substantive, he does not understand the problems and can not perform simple functional tests assessing the human body.

**5. Total student workload required to achieve the desired result in hours and ECTS credits**

| Activity                                            | Hours / student work |
|-----------------------------------------------------|----------------------|
| Hours of classes according to plan with the teacher | 61                   |
| Preparation for classes                             | 30                   |
| Participation in the consultations                  | -                    |
| The time to write a paper / essay                   | -                    |
| Preparation for tests                               | 38                   |
| Participation in colloquia                          | 1                    |
| Other (e-learning)                                  | -                    |
| SUM OF HOURS                                        | 130                  |
| TOTAL NUMBER OF ECTS                                | 5                    |

**6. TRAINING PRACTICES IN THE SUBJECT / MODUL**

|                                   |   |
|-----------------------------------|---|
| Number of hours                   | - |
| Rules and forms of apprenticeship | - |

**6. LITERATURE**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>READING:</b><br><br><ol style="list-style-type: none"><li>1. Patofizjologia. Podręcznik dla studentów medycyny. Red. Maśliński S, Ryżewski J. Tom 1 i 2. PZWL, Warszawa, 2014.</li><li>2. Patofizjologia człowieka. Red. Badowska-Kozakiewicz AM. PZWL, Warszawa, 2013.</li><li>3. Patofizjologia. Ivan Damjanov. Elsevier Urban &amp; Partner, Wrocław, 2009.</li><li>4. Atlas patofizjologii. Stefan Silbernagl, Florian Lang. MedPharm, Wrocław, 2011.</li><li>5. Patofizjologia człowieka w zarysie. Guzek JW. PZWL, Warszawa, 2002.</li></ol> |
| <b>Additional literature:</b><br><br><ol style="list-style-type: none"><li>1. Interna Szczeklika. Podręcznik chorób wewnętrznych 2016. Red. Gajewski P. Medycyna Praktyczna, Kraków, 2016.</li><li>2. Interna (tom 1-3). Red. Januszewicz W, Kokot F. PZWL, Warszawa, 2006.</li></ol>                                                                                                                                                                                                                                                                 |

3. Medycyna wewnętrzna. Repetytorium dla studentów medycyny i lekarzy.  
Red. Herold G. PZWL, Warszawa, 2008.

Acceptance Unit Manager or authorized person