

## SYLLABUS

concerning the cycle of education 2018-2024  
(date range)

**Academic year 2020/2021**

### 1. BASIC INFORMATION CONCERNING THIS SUBJECT

Subject	<b>Pathology</b>
Course code *	<b>Pm/CB</b>
Faculty of (name of the leading direction)	<b>Medical College of The University of Rzeszów</b>
Department Name	<b>Department of Pathomorphology</b>
Field of study	<b>Medical direction</b>
Level of education	<b>Uniform master studies</b>
Profile	<b>General academic</b>
Form of study	<b>Stationary/ non- stationary</b>
Year and semester	<b>Year III semester: V</b>
Type of course	<b>Obligatory</b>
Language	<b>English</b>
Coordinator	<b>Dr hab. n.med.Ewa Kaznowska, Prof UR, MD, PHD</b>
First and Last Name of the Teachers	<b>Dr hab. n. med. Ewa Kaznowska, Prof UR, MD, PHD Dr med. Elżbieta Łach-Pasko, MD Piotr Przyczyna, MD</b>

\* - According to the resolutions of Educational Unit

#### 1.1. Forms of classes, number of hours and ECTS

Semester No.	Lecture	Exercise	Conversation	Laboratory	Seminar	Z P	Praktical	Other	Number of points ECTS
V	30	40	-	-	-	-	-	-	6

#### 1.2. The form of class activities

- classes are in the traditional form  
 classes are implemented using methods and techniques of distance learning

#### 1.3 Examination Forms (exam, credit with grade or credit without grade)

## 2.BASIC REQUIREMENTS

Completed courses in anatomy, histology and physiology.

### 3. OBJECTIVES, OUTCOMES, AND PROGRAM CONTENT USED IN

#### TEACHING METHODS 3.1 Objectives of this course

<b>C1</b>	Acquiring knowledge of general pathology in theoretical and practical form (analysis of the macroscopic image of pathological changes in organs, microscopic exercises and participation in the autopsy examination)
<b>C2</b>	Understanding the structural and functional changes in cells, tissues and organs during disease and treatment.
<b>C3</b>	Developing the ability to relate disease symptoms with structural changes in cells, tissues and organs.
<b>C4</b>	Learning about various types of pathomorphological examinations and the ability to choose pathomorphological diagnostic methods.

#### 3.2 OUTCOMES FOR THE COURSE

EK (learning effect)	Content of the learning effect defined for the subject	Reference to directional effects <sub>1</sub>
<b>EK_01</b>	The student knows and understands the acid-base balance and mechanism of action of buffers and their importance in systemic homeostasis;	<b>B.W2</b>
<b>EK_02</b>	The student knows and understands the concepts of solubility, osmotic pressure, isotonic solutions, colloidal solutions and Gibbs-Donnan equilibrium;	<b>B.W3</b>
<b>EK_03</b>	The student knows and understands the mechanisms of cellular metabolism	<b>B.W4</b>
<b>EK_04</b>	The student knows and understands the structure of simple organic compounds that are part of macromolecules present in cells, extracellular matrix and	<b>B.W10</b>

EK (LEARNING EFFECT)	CONTENT OF THE LEARNING EFFECT DEFINED FOR THE SUBJECT	Reference to directional effects (KEK)
<b>EK_01</b>	knows pathomorphological nomenclature	<b>C.W25</b>
<b>EK_02</b>	knows the basic mechanisms of cell and tissue damage	<b>C.W26</b>
<b>EK_03</b>	knows the issues of detailed organ pathology, macro- and microscopic images and the clinical course of pathomorphological changes in individual organs	<b>C.W30</b>
<b>EK_04</b>	lists the clinical forms of the most common diseases of individual systems and organs, metabolic diseases as well as disorders of the water-electrolyte and acid-base balance	<b>C.W33</b>
<b>EK_05</b>	is able to relate images of tissue and organ damage with clinical	<b>C.U11</b>

	symptoms of the disease, history and laboratory test results	
<b>EK_06</b>	is able to relate images of tissue and organ damage with clinical symptoms of the disease, history and laboratory test results	<b>C.U12</b>

<sup>1</sup> In the case of a path of education leading to obtaining teaching qualifications, also take into account the learning outcomes of the standards of education preparing for the teaching profession.

### 3.3 CONTENT CURRICULUM

#### A. Themes of the lecture

<b>Lecture #</b>	<b>Theme</b>	<b>Lecturer</b>
<b>Lecture 1</b>	Introduction to pathomorphology. Basic concepts: histopathological, cytological, intraoperative and autopsy examination. Histochemical and immunohistochemical studies. Molecular research. Stages of pathomorphological diagnosis. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 2</b>	Adaptation processes: atrophy, growth, hypertrophy, metaplasia. Degenerations, necroses and apoptosis - definitions, pathomechanisms. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 3</b>	Inflammation: pathomechanism, definitions, classifications, examples. Regeneration, repair, scarring. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 4</b>	Hyperemia and ischemia. Edema, haemorrhage, shock, thrombosis, embolism, infarction, disseminated intravascular coagulation. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 5</b>	Blood vessel disease: types of vascular wall response to damage, hardening of the arteries, atherosclerosis, aneurysms, arteriitis, varicose veins, and cancer. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 6</b>	Heart diseases: ischemic disease, infarction, left and right ventricular failure, cardiomyopathies, neoplasms. Pericardial diseases. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 7</b>	Cancer: definition, terminology, tumor classification, benign and malignant neoplasms, differentiation, maturation, anaplasia, cataplasia, dysplasia. Pre-cancerous conditions and changes. The spread of neoplastic diseases. The influence of cancer on the host system. Paraneoplastic syndromes. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 8</b>	Anemia—definitions, examples, pathomechanism, complications. Hemorrhagic diathesis - definitions, examples, pathomechanism, complications. Non-neoplastic and neoplastic diseases of the hematopoietic and lymphatic systems - examples, pathomechanism, morphological forms, complications. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 9</b>	Non-neoplastic and neoplastic diseases of the bladder: inflammations, lupus nephritis, diabthetic nephropathy, acute tubular necrosis. Benign and malignant neoplasms of kidney. Malignant neoplasm metastatic to kidney. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 10</b>	Non-neoplastic and neoplastic diseases of the bladder. Diseases of the male reproductive system: orchitis, benign prostatic hyperplasia, prostate cancer. Tumors of the testicles and penis. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 11</b>	Pleural diseases: inflammation, primary and metastatic tumors of the	Dr med. Elżbieta Łach-

	pleura. Mediastinal diseases: inflammations, developmental disorders, primary tumors, thymomas, germ cell tumors. Examples.	Pasko Lecture in traditional form/on-line
<b>Lecture 12</b>	Non-neoplastic pulmonary diseases: developmental disorders, emphysema, pneumonia, granulomatous diseases: sarcoidosis, tuberculosis, vasculitis and granulomatosis, histiocytosis H, hypersensitivity pneumonitis, idiopathic pulmonary fibrosis, pneumoconiosis. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 13</b>	Lung neoplasms: small cell and non-small cell carcinoma, non-epithelial neoplasms, lung metastases. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 14</b>	Pathology of the female genital organs: ovaries, fallopian tubes, uterus. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 15</b>	Diseases of the mammary gland: inflammation, hyperplasia, involution, benign and malignant neoplasms, epithelial-mesenchymal neoplasms, breast cancer: histological and molecular classification. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line

#### B. Themes of laboratories and practical classes

No	Course content
<b>1</b>	Organizational exercises
<b>2</b>	Adaptation processes: atrophy, hypertrophy, hyperplasia, metaplasia. degeneration, necrosis and apoptosis.
<b>3</b>	Inflammation, regeneration, repair and scarring.
<b>4</b>	Haemodynamic disorders: shock, thrombosis, embolism, infarction, disseminated intravascular coagulation syndrome.
<b>5</b>	Blood vessel diseases: vascular wall response to damage, hardening of the arteries, atherosclerosis, aneurysms, inflammation of blood vessels, varicose veins, cancer
<b>6</b>	Heart diseases: ischemic disease, infarction, left and right ventricular failure, cardiomyopathies, neoplasms. Pericardial diseases.
<b>7</b>	Cancer: definition, terminology, tumor classification, benign and malignant neoplasms, differentiation, maturation, anaplasia, cataplasia, dysplasia. Pre-cancerous conditions and changes. The spread of neoplastic diseases. The influence of cancer on the host system. Paraneoplastic syndromes.
<b>8</b>	Anemia- definitions, examples, pathomechanism, complications. Hemorrhagic diathesis - definitions, examples, pathomechanism, complications. Non-neoplastic and neoplastic diseases of the hematopoietic and lymphatic systems - examples, pathomechanism, morphological forms, complications.
<b>9</b>	Non-cancerous kidney diseases: inflammation, diabetes, collagenosis, shock. Benign and malignant neoplasms, kidney metastases.
<b>10</b>	Non-neoplastic and neoplastic diseases of the bladder. Diseases of the male reproductive system: orchitis, benign prostatic hyperplasia, prostate cancer. Tumors of the testicles and penis
<b>11</b>	Pleural diseases: inflammation, primary and metastatic tumors of the pleura. Mediastinal diseases: inflammations, developmental disorders, primary tumors, thymomas, germ cell tumors.
<b>12</b>	Non-cancerous lung diseases: developmental disorders, emphysema, pneumonia, granulomatous diseases: sarcoidosis, tuberculosis, vasculitis and granulomatosis, Langerhans cell histiocytosis, hypersensitivity pneumonitis, idiopathic pulmonary fibrosis, pneumoconiosis.
<b>13</b>	Lung neoplasms: small cell and non-small cell carcinoma, non-epithelial neoplasms, lung metastases.
<b>14</b>	Pathology of the female genital organs: ovaries, fallopian tubes, uterus, vagina, vulva. Diseases of the mammary gland: inflammation, hyperplasia, involution, benign and malignant neoplasms, epithelial-mesenchymal neoplasms, breast cancer: histological and molecular classification.
<b>15</b>	Semester test

Lecture: lecture with multimedia presentation

Classes: multimedia presentation, demonstration of cases of current histopathological diagnostics in correlation with clinical data, learning macroscopic and microscopic evaluation using the technique of light microscopy, immunohistochemistry and elements of molecular biology along with the preparation of a report, acquisition and improvement of the ability to recognize and properly differentiate specific morphological changes, compilation morphological changes with a clinical picture with the determination of the final epicrisis.

Educational e-consultations.

Student's own work: work with the book and materials provided by the teachers in electronic form

#### 4.1 Methods of verification of learning outcomes

<b>Symbol of effect</b>	<b>Methods of assessment of learning outcomes (Eg.: tests, oral exams, written exams, project reports, observations during classes)</b>	<b>Form of classes</b>
<b>EK_01-EK_06</b>	WRITTEN TEST	<b>L</b>
<b>EK_07-EK_09 EK_17-EK20</b>	WRITTEN Assessment OBSERVATION DURING CLASSES	<b>EXERCISE SEM.</b>

#### 4. Conditions for passing the course (grading criteria)

Lectures:

Written test

Knowledge assessment (EK\_01-EK\_06):

5.0 - shows knowledge of each of the content of education at the level of 90% -100%

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

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

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

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

2.0 - shows knowledge of each of the content of education below 60%

Exercises:

1. full participation and activity in the exercises

2. partial written tests

Rating range: 2.0 - 5.0

Skills assessment (EK\_07-EK\_12):

5.0 - the student actively participates in the classes, is well prepared, prepares the preparation correctly and recognizes pathogens under the microscope

4.5 - the student actively participates in the classes, with a little help from the teacher properly prepares the preparation and recognizes pathogens under the microscope

4.0 - the student actively participates in the classes, prepares the preparation with the help of the teacher and recognizes pathogens under the microscope

3.5 - the student participates in the classes, his scope of preparation does not allow for a comprehensive presentation of the discussed problem, he often makes mistakes while preparing the preparation and incorrectly recognizes pathogens under the microscope

3.0 - the student participates in the classes, formulates conclusions that require correction on the part of the teacher, however, making large mistakes during the preparation of the preparation and incorrectly recognizes pathogens under the microscope

2.0 - the student passively participates in the classes, the statements are factually incorrect, he does not understand the problems, during the preparation of the preparation he makes a wrong and incorrectly recognizes pathogens under the microscope

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

Activity	The average number of hours to complete the activity
Contact hours (with the teacher) resulting from the study schedule of classes	70
Contact hours (with the teacher) participation in the consultations, exams	1,5
Non-contact hours - student's own work (preparation for classes, exam, writing a paper, etc.)	150

<b>SUM OF HOURS</b>	<b>223,5</b>
<b>TOTAL NUMBER OF ECTS</b>	<b>5</b>

*\* It should be taken into account that 1 ECTS point corresponds to 25-30 hours of total student workload.*

## **6. TRAINING PRACTICES IN THE SUBJECT**

<b>NUMBER OF HOURS</b>	-
<b>RULES AND FORMS OF APPRENTICESHIP</b>	-

## **7. LITERATURE**

- 1. ROBBINS BASIC PATHOLOGY, TENTH EDITION. 2018 BY ELSEVIER INC.**  
ISBN: 978-0-323-35317-5  
International Edition: 978-0-323-48054-3
- 2. Supplementary literature:**  
Scientific literature: articles in scientific journals

Thirty-First Edition 31st Edition

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*Class handouts*

Acceptance Unit Manager or authorized person