

**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 Pathology</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: VI</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
VI	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 1
<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>	Oral cavities: diseases of teeth and supporting structures, inflammatory lesion, proliferative lesions of the oral cavity, neoplasms of oral cavity, xerostomia, sialadenitis, salivary gland tumors. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 2</b>	Gastrointestinal tract: esophagus, stomach: obstructive and vascular diseases of the esophagus, esophagitis, esophageal tumors, gastropathy and acute gastritis, chronic gastritis, peptic ulcer disease, mucosal atrophy, intestinal metaplasia, dysplasia, gastric polyps, neoplasm of the stomach, GIST. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 3</b>	Gastrointestinal tract: small and large intestine: intussusception, Hirschsprung disease, abdominal hernia, vascular disorders of bowel, diarrheal disease, inflammatory bowel disease, colonic polyps, colorectal neoplasm, appendicitis, tumors of the appendix. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 4</b>	Liver and gallbladder: acute, chronic and acute-on-chronic liver failure, viral hepatitis, autoimmune liver disease, metabolic liver disease, drug- and toxic- induced liver injury, benign and malignant liver tumor, cholecystitis, gallbladder neoplasms. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 5</b>	Pancreas: congenital anomalies, acute and chronic pancreatitis, pancreatic neoplasms. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 6</b>	Endocrine system: anterior pituitary tumors, hypopituitarism, posterior pituitary syndromes, hyperthyroidism, hypothyroidism, autoimmune thyroid disease, diffuse and multinodular goiter, thyroid neoplasms, parathyroid adenoma, carcinoma, hyperparathyroidism, hypoparathyroidism, diabetes mellitus, adrenocortical dysfunction, adrenocortical neoplasms, tumors of adrenal medulla, MEN syndromes. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 7</b>	Bones and joints: osteoporosis, hyperparathyroidism, Paget disease, osteogenic and chondrogenic tumors, Ewing sarcoma, giant cell tumor of bone, fibrous dysplasia, osteoarthritis, rheumatoid arthritis, Lyme disease, tenosynovial giant cell tumor, gout and pseudogout. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 8</b>	Soft tissue tumors: tumor of adipose tissue, fibrous tumors, smooth muscle tumors, tumors of uncertain origin. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line

<b>Lecture 9</b>	Peripheral nerves and muscles: patterns of nerve and muscle injury, disorders of neuromuscular junction: myasthenia gravis, Lambert-Eaton syndrome, inherited and acquired disorders of skeletal muscle, peripheral nerve sheath tumors, skeletal muscle tumors. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 10</b>	Central nervous system: edema, herniation, hydrocephalus, cerebrovascular diseases, trauma, congenital malformation, perinatal brain injury, infections, diseases of myelin, tumors. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 11</b>	Non neoplastic diseases of skin. Tissue reaction patterns: lichenoid, psoriasiform, spongiotic, vesiculobullous, granulomatous, vasculopathic. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 12</b>	Skin neoplasms. Benign and premalignant epithelial lesions, malignant epidermal tumors, melanocytic lesions. Examples.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 13</b>	Diagnostic immunohistochemistry in the diagnosis of primary and metastatic cancer.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 14</b>	The role of pathology in personalized medicine: immunohistochemical and molecular biomarkers in NSCLC, malignant melanoma, colorectal cancer, breast cancer and others.	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line
<b>Lecture 15</b>	Pathologic Quiz Cases	Dr med. Elżbieta Łach-Pasko Lecture in traditional form/on-line

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

<b>No</b>	<b>Course content</b>
<b>1</b>	Oral cavities: diseases of teeth and supporting structures, inflammatory lesion, proliferative lesions of the oral cavity, neoplasms of oral cavity, xerostomia, sialadenitis, salivary gland tumors
<b>2</b>	Gastrointestinal tract: esophagus, stomach: obstructive and vascular diseases of the esophagus, esophagitis, esophageal tumors, gastropathy and acute gastritis, chronic gastritis, peptic ulcer disease, mucosal atrophy, intestinal metaplasia, dysplasia, gastric polyps, neoplasm of the stomach, GIST.
<b>3</b>	Gastrointestinal tract: small and large intestine: intussusception. Hirschsprung disease, abdominal hernia, vascular disorders of bowel, diarrheal disease, inflammatory bowel disease, colonic polyps, colorectal neoplasm, appendicitis, tumors of the appendix.
<b>4</b>	Liver and gallbladder: acute, chronic and acute-on-chronic liver failure, viral hepatitis, autoimmune liver disease, metabolic liver disease, drug- and toxic- induced liver injury, benign and malignant liver tumor, cholecystitis, gallbladder neoplasms
<b>5</b>	Pancreas: congenital anomalies, acute and chronic pancreatitis, pancreatic neoplasms
<b>6</b>	Endocrine system: anterior pituitary tumors, hypopituitarism, posterior pituitary syndromes, hyperthyroidism, hypothyroidism, autoimmune thyroid disease, diffuse and multinodular goiter, thyroid neoplasms, parathyroid adenoma, carcinoma,

	hyperparathyroidism, hypoparathyroidism, diabetes mellitus, adrenocortical dysfunction, adrenocortical neoplasms, tumors of adrenal medulla, MEN syndromes.
7	Bones and joints: osteoporosis, hyperparathyroidism, Paget disease, osteogenic and chondrogenic tumors, Ewing sarcoma, giant cell tumor of bone, fibrous dysplasia, osteoarthritis, rheumatoid arthritis, Lyme disease, tenosynovial giant cell tumor, gout and pseudogout.
8	Soft tissue tumors: tumor of adipose tissue, fibrous tumors, smooth muscle tumors, tumors of uncertain origin
9	Peripheral nerves and muscles: patterns of nerve and muscle injury, disorders of neuromuscular junction: myasthenia gravis, Lambert-Eaton syndrome, inherited and acquired disorders of skeletal muscle, peripheral nerve sheath tumors, skeletal muscle tumors.
10	Central nervous system: edema, herniation, hydrocephalus, cerebrovascular diseases, trauma, congenital malformation, perinatal brain injury, infections, diseases of myelin, tumors.
11	Non neoplastic diseases of skin. Tissue reaction patterns: lichenoid, psoriasiform, spongiotic, vesiculobullous, granulomatous, vasculopathic.
12	Skin neoplasms. Benign and premalignant epithelial lesions, malignant epidermal tumors, melanocytic lesions
13	Diagnostic immunohistochemistry in the diagnosis of primary and metastatic cancer.
14	The role of pathology in personalized medicine: immunohistochemical and molecular biomarkers in NSCLC, malignant melanoma, colorectal cancer, breast cancer and others
15	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

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-EK_06	WRITTEN TEST	L
EK_07-EK_09 EK_17-EK20	WRITTEN Assessment OBSERVATION DURING CLASSES	EXERCISE SEM.

#### 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

*Class handouts*

Acceptance Unit Manager or authorized person