

## Pathology

### Educational subject description sheet

#### Basic information

<b>Department</b> Faculty of Medicine  <b>Field of study</b> Medical Program  <b>Study level</b> long-cycle master's degree program  <b>Study form</b> full-time  <b>Education profile</b> general academic  <b>Disciplines</b> Medical science  <b>Subject related to scientific research</b> Yes		<b>Didactic cycle</b> 2016/17  <b>Realization year</b> 2017/18  <b>Lecture languages</b> English  <b>Block</b> obligatory for passing in the course of studies  <b>Mandatory</b> obligatory  <b>Examination</b> examination  <b>Standard group</b> C. Preclinical course
<b>Subject coordinator</b>	Krzysztof Gil, Grzegorz Dyduch	
<b>Lecturer</b>	Dariusz Adamek, Katarzyna Ciesielczyk, Andrzej Bugajski, Agata Ziomber-Lisiak, Agata Furgała, Kamil Skowron, Jolanta Kaszuba-Zwoińska, Grzegorz Dyduch, Krystyna Gałązka, Krzysztof Okoń, Katarzyna Milian-Ciesielska, Łukasz Chmura, Magdalena Ulatowska-Białas	

<b>Period</b> Semester 3	<b>Examination</b> -  <b>Activities and hours</b> classes: 54, seminar: 38, dissection classes: 4, lecture: 15	<b>Number of ECTS points</b> 0.0
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<b>Period</b> Semester 4	<b>Examination</b> examination  <b>Activities and hours</b> lecture: 14, classes: 54, seminar: 38, dissection classes: 4	<b>Number of ECTS points</b> 15.0
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## Goals

C1	The educational goal is knowing and understanding etiology, pathogenesis and symptoms of selected human diseases and ability to correlate pathomechanisms of a disease with both gross and microscopic morphological features.
C2	After the course a student should be able to link images of tissue and organ damage with clinical signs of disease, history and results of laboratory tests, to place properly histopathologic examination in diagnostic ladder and to plan the diagnostic procedure and interpret its results,

## Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
<b>Knowledge - Student knows and understands:</b>			
W1	pathomorphological nomenclature	C.W26	classroom observation, multiple choice test
W2	basic mechanisms of cell and tissue damage	C.W27	classroom observation, multiple choice test
W3	clinical course of specific and non-specific inflammations, as well as tissue and organ regeneration processes	C.W28	classroom observation, multiple choice test
W4	definition and pathophysiology of shock, with particular emphasis on differentiation of the causes of shock and multi-organ failure	C.W29	classroom observation, multiple choice test
W5	aetiology of haemodynamic disorders, regressive and progressive changes	C.W30	classroom observation, multiple choice test
W6	issues related to detailed pathology of organs, macro- and microscopic images and clinical course of pathomorphological changes in particular organs	C.W31	classroom observation, multiple choice test
W7	consequences of developing pathological changes for topographically adjacent organs	C.W32	classroom observation, multiple choice test
W8	external and internal pathogens, both modifiable and non-modifiable	C.W33	classroom observation, multiple choice test
W9	clinical forms of the most frequent diseases of particular systems and organs, metabolic diseases and disorders of water-electrolyte, hormonal and acid-base metabolism	C.W34	classroom observation, multiple choice test
W10	the consequences of inadequate nutrition, including prolonged hunger, excessive food intake and unbalanced diet, and disorders of digestion and absorption of digestive products	C.W50	classroom observation, multiple choice test
W11	the consequences of vitamin or mineral deficiencies and their excess in the body	C.W48	classroom observation, multiple choice test
W12	influence of oxidative stress on cells and its importance in the pathogenesis of diseases and aging processes	C.W47	classroom observation, multiple choice test
W13	enzymes involved in digestion, the mechanism of hydrochloric acid production in the stomach, the role of bile, the course of absorption of digestive products	C.W49	classroom observation, multiple choice test

W14	the mechanism of hormone actions	C.W51	classroom observation, multiple choice test
W15	pre-cancerous and high-risk conditions related to cancer, neoplastic transformation processes with their morphological signs, principles of cancer classification according to WHO, the most important risk factors, prognostic and predictive, and methods of histopathological and cytological testing and supporting molecular tests used in cancer diagnosis, detection and monitoring pre-cancerous conditions, and also understands the importance of proper diagnosis of histopathology cancer for proper treatment	C.W53	classroom observation, multiple choice test
W16	pathogenesis and morphological changes of diseases associated with advanced age, including those particularly important in an aging society, the most frequent neurodegenerative diseases (e.g. Alzheimer's disease)	C.W54	classroom observation, multiple choice test
W17	morphological changes, and understands the pathogenesis of critical pathological conditions brain such as swelling, ischemia, hemorrhages, effects of exogenous substances (e.g. alcohol, CO) and mechanical injury	C.W55	classroom observation, multiple choice test
W18	the importance of post-mortem examination as an examination verifying the diagnosis and important for improving the quality of hospital work and for the self-education of a doctor, and this knowledge is supported by direct, i.e. personal active participation in autopsy	C.W57	classroom observation, multiple choice test
W19	the subject of basic (including histochemistry and immunohistochemistry) techniques used in pathomorphological diagnostics and selected molecular techniques (FISH, etc.), and understands their determinants related to the protection of material, and knows the rules of evaluation and interpretation of macro- and microscopic material to be examined	C.W58	classroom observation, multiple choice test
W20	morphological changes in the most important non-cancer diseases affecting the entire organism (e.g. atherosclerosis, hypertension, diabetes, cardiopulmonary insufficiency, systemic infectious and immunological diseases, the most frequent hormonal disorders, the most frequent genetic diseases), and is able to link them with already acquired knowledge of anatomy, biochemistry and pathological physiology in order to deduce clinical symptoms	C.W52	classroom observation, multiple choice test
W21	morphological changes in the most common pathologies of the pediatric period, including in particular perinatal pathologies and genetic diseases and developmental disorders (defects) in children, and is able to link them with teratogenic, genetic factors and perinatal trauma	C.W56	classroom observation, multiple choice test
W22	development, structure and functions of the human body in normal and pathological conditions	O.W1	classroom observation, multiple choice test
W23	symptoms and course of diseases	O.W2	classroom observation, multiple choice test

W24	the consequences of human body exposure to various chemical and biological agents and the principles of prevention	C.W15	classroom observation, multiple choice test
W25	types of hypersensitivity reactions, types of immunodeficiency and basics of immunomodulation	C.W23	classroom observation, multiple choice test
<b>Skills - Student can:</b>			
U1	link images of tissue and organ damage with clinical signs of disease, history and results of laboratory tests	C.U11	classroom observation, multiple choice test
U2	analyze reaction, defense and adaptation phenomena and regulatory disturbances caused by an etiological factor	C.U12	classroom observation, multiple choice test
U3	use the antigen-antibody reaction in current modifications and techniques for the diagnosis of infectious, allergic, autoimmune and neoplastic diseases and blood diseases	C.U8	classroom observation, multiple choice test
U4	identify medical problems and prioritize medical management	O.U1	classroom observation, multiple choice test
U5	identify life-threatening conditions that require immediate medical intervention	O.U2	classroom observation, multiple choice test
U6	plan the diagnostic procedure and interpret its results	O.U3	classroom observation, multiple choice test
U7	implement appropriate and safe therapeutic treatment and predict its effects	O.U4	classroom observation
U8	plan own learning activities and constantly learn in order to update own knowledge	O.U5	classroom observation
U9	inspire the learning process of others	O.U6	classroom observation
U10	critically evaluate the results of scientific research and adequately justify the position	O.U9	classroom observation
<b>Social competences - Student is ready to:</b>			
K1	perceive and recognize own limitations and self-assessing educational deficits and needs	O.K5	classroom observation
K2	use objective sources of information	O.K7	classroom observation
K3	promote health-promoting behaviors	O.K6	classroom observation
K4	formulate conclusions from own measurements or observations	O.K8	classroom observation

## Calculation of ECTS points

### Semester 3

Activity form	Activity hours*
classes	54
seminar	38
dissection classes	4

lecture	15
preparation for classes	96
preparation for colloquium	13
<b>Student workload</b>	<b>Hours</b> 220
<b>Workload involving teacher</b>	<b>Hours</b> 111
<b>Practical workload</b>	<b>Hours</b> 58

\* hour means 45 minutes

#### Semester 4

Activity form	Activity hours*
lecture	14
classes	54
seminar	38
dissection classes	4
preparation for classes	60
preparation for examination	30
preparation for colloquium	30
<b>Student workload</b>	<b>Hours</b> 230
<b>Workload involving teacher</b>	<b>Hours</b> 110
<b>Practical workload</b>	<b>Hours</b> 58

\* hour means 45 minutes

### Study content

No.	Course content	Subject's learning outcomes	Activities
1.	Introductory topics. Basic concepts of pathology.	W1, W15, W16, W18, W19, W2, W21, W6, W7, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	seminar, dissection classes

2.	Types of necrosis. Adaptations and degenerative changes	W1, W15, W18, W6, W7, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
3.	Hemodynamic disorders ( congestion, oedema, thrombosis,etc)	W1, W2, W6, W7, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
4.	Morphology of inflammation	W1, W10, W19, W2, W20, W3, W6, W7, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
5.	Neoplasms – epidemiology, carcinogenesis, nomenclature	W1, W13, W14, W15, W19, W2, W3, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes, lecture
6.	Infectious diseases	W1, W10, W13, W14, W15, W19, W2, W20, W3, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	lecture
7.	Immunopathology	W1, W14, W15, W16, W17, W19, W2, W21, W3, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	lecture
8.	Hematopathology – myelogenous neoplasms, thymus pathology part I	W1, W10, W19, W2, W3, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	lecture
9.	Pediatric pathology, selected genetic diseases etc	W1, W11, W14, W15, W16, W19, W2, W20, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
10.	Blood vessels pathology	W1, W15, W16, W19, W2, W3, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
11.	Heart pathology ( cardiomyopathies, infarction, etc)	W1, W15, W19, W2, W3, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	lecture
12.	Hematopathology – myelogenous neoplasms, thymus pathology part II	W1, W14, W15, W16, W19, W2, W3, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	lecture

13.	Head and neck pathology	W1, W10, W11, W12, W13, W14, W16, W19, W2, W20, W6, W7, W8, W9	classes
14.	Oesophagus and stomach	W1, W14, W2, W4, W5, W6, W7, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
15.	Pulmonary pathology	W1, W19, W2, W3, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
16.	Hematopathology- lymphomas	W1, W15, W18, W19, W2, W3, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
17.	Female genital tract	W1, W15, W19, W2, W3, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
18.	Kidney pathology	W1, W10, W15, W19, W2, W20, W3, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
19.	Small and large intestine	W1, W10, W12, W15, W19, W2, W20, W3, W4, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
20.	Liver and gallbladder	W1, W10, W12, W15, W19, W2, W20, W3, W4, W5, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
21.	Lower urinary tract	W1, W15, W16, W19, W2, W20, W3, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
22.	Pancreas	W1, W10, W11, W14, W15, W17, W18, W19, W2, W21, W5, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
23.	Male genital tract	W1, W15, W2, W20, W3, W6, W7, W8, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes

24.	Eye and ear pathology	W1, W12, W14, W15, W16, W19, W2, W20, W3, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes, lecture
25.	Endocrine pathology	W1, W10, W11, W14, W15, W16, W19, W2, W20, W3, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
26.	Breast pathology	W1, W15, W19, W3, W6, W7, W8, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
27.	Dermatopathology	W1, W11, W14, W15, W19, W2, W20, W3, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
28.	Bones and joints	W1, W10, W11, W15, W16, W17, W18, W19, W2, W20, W21, W3, W4, W5, W6, W7, W8, W9, U1, U10, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3, K4	classes
29.	Neuropathology	W11, W2, W22, W23, W24, W25, W8, U1, U2, K1, K2	classes
30.	Soft tissue tumours	W10, W2, W22, W23, W24, W4, W5, W6, W8, U1, U2, K1, K2	classes

## Course advanced

### Semester 3

#### Teaching methods:

case study, brainstorm, classes / practicals, laboratories (labs), dissection classes, preclinical classes, demonstration, discussion, lecture, educational film, case study method, presentation, group work, trip, lecture, lecture with multimedia presentation

Activities	Examination methods	Credit conditions
classes	multiple choice test	1st and 2nd mid-term MCQs tests (credit > 50% of the total points from both tests). Final exam - MCQs test (credit > 50% points)
seminar	classroom observation, multiple choice test	1st and 2nd mid-term MCQs tests (credit > 50% of the total points from both tests). Final exam - MCQs test (credit > 50% points)
dissection classes	classroom observation, multiple choice test	1st and 2nd mid-term MCQs tests (credit > 50% of the total points from both tests). Final exam - MCQs test (credit > 50% points)



Activities	Examination methods	Credit conditions
lecture	classroom observation	1st and 2nd mid-term MCQs tests (credit> 50% of the total points from both tests). Final exam - MCQs test (credit> 50% points)

#### Semester 4

##### Teaching methods:

case study, classes / practicals, laboratories (labs), dissection classes, preclinical classes, demonstration, discussion, e-learning, educational film, case study method, presentation, group work, seminar, trip, lecture

Activities	Examination methods	Credit conditions
lecture	multiple choice test	1st and 2nd mid-term MCQs tests (credit> 50% of the total points from both tests). Final exam - MCQs test (credit> 50% points)
classes	classroom observation, multiple choice test	1st and 2nd mid-term MCQs tests (credit> 50% of the total points from both tests). Final exam - MCQs test (credit> 50% points)
seminar	classroom observation, multiple choice test	1st and 2nd mid-term MCQs tests (credit> 50% of the total points from both tests). Final exam - MCQs test (credit> 50% points)
dissection classes	classroom observation	1st and 2nd mid-term MCQs tests (credit> 50% of the total points from both tests). Final exam - MCQs test (credit> 50% points)

##### Additional info

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## Literature

##### Obligatory

1. Robbins Basic Pathology, Elsevier 10th.ed., 2012)
2. Rubin's Pathology: Clinicopathologic Foundations of Medicine, Wolters-Kluwer wyd. 7, 2014
3. PTF. I. Damjanov: „Patofizjologia”. Elsevier, Urban & Partner, Wrocław 2010.

##### Optional

1. Robbins Pathology, Elsevier wyd. 9, 2014

## Standard effects

Code	Content
C.U8	use the antigen-antibody reaction in current modifications and techniques for the diagnosis of infectious, allergic, autoimmune and neoplastic diseases and blood diseases
C.U11	link images of tissue and organ damage with clinical signs of disease, history and results of laboratory tests
C.U12	analyze reaction, defense and adaptation phenomena and regulatory disturbances caused by an etiological factor
C.W15	the consequences of human body exposure to various chemical and biological agents and the principles of prevention
C.W23	types of hypersensitivity reactions, types of immunodeficiency and basics of immunomodulation
C.W26	pathomorphological nomenclature
C.W27	basic mechanisms of cell and tissue damage
C.W28	clinical course of specific and non-specific inflammations, as well as tissue and organ regeneration processes
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C.W31	issues related to detailed pathology of organs, macro- and microscopic images and clinical course of pathomorphological changes in particular organs
C.W32	consequences of developing pathological changes for topographically adjacent organs
C.W33	external and internal pathogens, both modifiable and non-modifiable
C.W34	clinical forms of the most frequent diseases of particular systems and organs, metabolic diseases and disorders of water-electrolyte, hormonal and acid-base metabolism
C.W47	influence of oxidative stress on cells and its importance in the pathogenesis of diseases and aging processes
C.W48	the consequences of vitamin or mineral deficiencies and their excess in the body
C.W49	enzymes involved in digestion, the mechanism of hydrochloric acid production in the stomach, the role of bile, the course of absorption of digestive products
C.W50	the consequences of inadequate nutrition, including prolonged hunger, excessive food intake and unbalanced diet, and disorders of digestion and absorption of digestive products
C.W51	the mechanism of hormone actions
C.W52	morphological changes in the most important non-cancer diseases affecting the entire organism (e.g. atherosclerosis, hypertension, diabetes, cardiopulmonary insufficiency, systemic infectious and immunological diseases, the most frequent hormonal disorders, the most frequent genetic diseases), and is able to link them with already acquired knowledge of anatomy, biochemistry and pathological physiology in order to deduce clinical symptoms
C.W53	pre-cancerous and high-risk conditions related to cancer, neoplastic transformation processes with their morphological signs, principles of cancer classification according to WHO, the most important risk factors, prognostic and predictive, and methods of histopathological and cytological testing and supporting molecular tests used in cancer diagnosis, detection and monitoring pre-cancerous conditions, and also understands the importance of proper diagnosis of histopathology cancer for proper treatment
C.W54	pathogenesis and morphological changes of diseases associated with advanced age, including those particularly important in an aging society, the most frequent neurodegenerative diseases (e.g. Alzheimer's disease)
C.W55	morphological changes, and understands the pathogenesis of critical pathological conditions brain such as swelling, ischemia, hemorrhages, effects of exogenous substances (e.g. alcohol, CO) and mechanical injury
C.W56	morphological changes in the most common pathologies of the pediatric period, including in particular perinatal pathologies and genetic diseases and developmental disorders (defects) in children, and is able to link them with teratogenic, genetic factors and perinatal trauma

<b>Code</b>	<b>Content</b>
C.W57	the importance of post-mortem examination as an examination verifying the diagnosis and important for improving the quality of hospital work and for the self-education of a doctor, and this knowledge is supported by direct, i.e. personal active participation in autopsy
C.W58	the subject of basic (including histochemistry and immunohistochemistry) techniques used in pathomorphological diagnostics and selected molecular techniques (FISH, etc.), and understands their determinants related to the protection of material, and knows the rules of evaluation and interpretation of macro- and microscopic material to be examined
O.K5	perceive and recognize own limitations and self-assessing educational deficits and needs
O.K6	promote health-promoting behaviors
O.K7	use objective sources of information
O.K8	formulate conclusions from own measurements or observations
O.U1	identify medical problems and prioritize medical management
O.U2	identify life-threatening conditions that require immediate medical intervention
O.U3	plan the diagnostic procedure and interpret its results
O.U4	implement appropriate and safe therapeutic treatment and predict its effects
O.U5	plan own learning activities and constantly learn in order to update own knowledge
O.U6	inspire the learning process of others
O.U9	critically evaluate the results of scientific research and adequately justify the position
O.W1	development, structure and functions of the human body in normal and pathological conditions
O.W2	symptoms and course of diseases