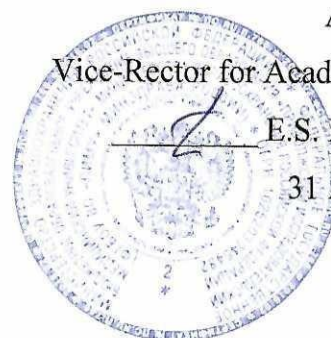


APPROVED

Vice-Rector for Academic Affairs

E.S. Bogomolova

31 August 2021



WORKING PROGRAM

Name of the academic discipline: **PATHOLOGICAL ANATOMY, CLINICAL
PATHOLOGICAL ANATOMY**

Specialty: **31.05.01 GENERAL MEDICINE**
(code, name)

Qualification: **GENERAL PRACTITIONER**

Department: **PATHOLOGICAL ANATOMY**

Mode of study: **FULL-TIME**

Labor intensity of the academic discipline: **252 academic hours**

Nizhny Novgorod
2021

The working program has been developed in accordance with the Federal State Educational Standard for specialty 31.05.01 GENERAL MEDICINE approved by Order of the Ministry of Science and Higher Education of the Russian Federation No. 988 of August 12, 2020.

Developers of the working program:

Orlinskaya N. Yu., Grande PhD Medical sciences, Associate Professor, the Head of the Pathological Anatomy Department

Yunusova K.E., PhD in Medical sciences, Associate Professor, Associate Professor of the Pathological Anatomy Department

The program was reviewed and approved at the department meeting (protocol No.5 20.04.21)

Head of the Department,

Grande PhD Medical sciences,

Associate Professor



(Orlinskaya N. Yu.)

(signature)

20.04.21

AGREED

Deputy Head of EMA ph.d. of biology



Lovtsova L.V.

(signature)

20.04.21

1. THE PURPOSE AND OBJECTIVES OF MASTERING THE DISCIPLINE

1.1 The purpose and objectives of mastering the discipline "Pathological anatomy, clinical pathological anatomy" (hereinafter referred to as the discipline).

The purpose of mastering the discipline: participation in the formation of competencies of the UC-1; GPC-5.

1.2 Objectives of the discipline:

The student should know:

1. Basic medical terms reflecting the content of the curriculum.
2. Causes, morphological manifestations, complications, outcomes of general pathological processes, major human diseases.

be able to:

1. To distinguish at the macro- and light-optical levels structural changes in the main general pathological processes.
2. To recognize pathomorphological changes of organs in the most important human diseases.
3. Describe morphological changes in the studied macro-preparations, micro-preparations and electronograms.
4. Formulate a conclusion about the pathological process according to the totality of pathomorphological changes.
5. To conduct a comparative assessment of morphological changes in various forms of the pathological process.

posses:

1. Skills of describing macroscopic changes in various pathological processes and major human diseases.
2. Skills of microscopy of pathohistological preparations.
3. Skills of sketching pathohistological preparations.
4. Understanding the mechanisms of formation of morphological changes that occur in organs and tissues during the pathological process, meaning for the body.

2. The place of the discipline in the structure of the Main professional educational program of higher education.

2.1 The discipline belongs to the basic part of block 1 "Disciplines (modules)" The main educational program of higher education. The discipline is studied from the fifth and sixth semesters.

2.2 To study the discipline, knowledge, skills and abilities formed by previous disciplines are required: biology, physics, chemistry, anatomy; histology, embryology, cytology; bioorganic chemistry; microbiology, virology; normal physiology; propaedeutics of internal diseases.

2.3 The study of the discipline is necessary for the knowledge, skills and abilities formed by subsequent disciplines: internal diseases, surgical diseases, faculty therapy, occupational diseases; hospital therapy, endocrinology, hospital surgery; polyclinic therapy, infectious diseases, neurology, otorhinolaryngology, ophthalmology, gynecology, urology, pediatrics, oncology, radiation therapy, oncohematology.

3. Deliverables of mastering the academic discipline and metrics of competence acquisition

Mastering the discipline aims at acquiring the following universal (UC) and general professional (GPC) competencies

№	Competence code	The content of the competence (or its part)	Code and name of the competence acquisition metric	As a result of mastering the discipline, the students should:		
				know	be able to	possess
	UK-1	Able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy	AI-1 UC-1.1 selection of critical analysis methods and evaluation of modern scientific achievements; basic principles of critical analysis AI-2 UC-1.2 obtaining new knowledge based on analysis, synthesis, etc.; collecting data on complex scientific problems related to the professional field; searching for information and solutions based on actions, experiment and experience AI-3 UC-1.3 implementation of practical experience: research of the problem of	Knows: methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis	gain new knowledge based on analysis, synthesis, etc.; collect data on complex scientific problems related to the professional field; search for information and solutions based on action, experiment and experience	Has practical experience: researching the problem of professional activity using analysis, synthesis and other methods of intellectual activity; developing an action strategy to solve professional problems

			professional activity with the use of analysis, synthesis and other methods of intellectual activity; development of an action strategy for solving professional problems			
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	GPC-5	Able to assess morphofunctional, physiological conditions and pathological processes in the human body to solve professional problems	<p>AI-1 Knowledge of pathological anatomy and physiology of human organs and systems</p> <p>AI-2 the ability to evaluate the basic morphofunctional data, physiological states and pathological processes in the human body</p> <p>A.I-3 implementation of practical experience: assessment of basic morphofunctional data, physiological conditions and pathological processes in the human body when solving professional tasks</p>	Knows: anatomy, histology, embryology, topographic anatomy, physiology, pathological anatomy and physiology of human organs and systems	Able to: evaluate the basic morphological and functional data, physiological conditions and pathological processes in the human body	Has practical experience in: assessment of basic morphological and functional data, physiological conditions and pathological processes in the human body when solving professional problems
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4. Sections of the academic discipline and competencies that are formed when mastering them

№	Competence code	Section name of the discipline	The content of the section in teaching units
1.	UK-1 GPC-5	Damage to cells and tissues.	Necrosis. Apoptosis.
2.	UK-1 GPC-5	Morphology of protein and lipid metabolism disorders.	Fat and protein intracellular and extracellular accumulations, hyaline changes, amyloidosis, obesity.
3.	UK-1 GPC-5	Morphology of pigment metabolism disorders	Violation of the metabolism of hemosiderin, bilirubin, melanin, lipofuscin. Stone formation. Calcification.
4.	UK-1 GPC-5	Circulatory disorders:	Full blood (arterial, venous), bleeding, hemorrhage, stasis. Violations of the content of tissue fluid. thrombosis, embolism, anemia (ischemia), heart attack. DIC syndrome. Shock.
5.	UK-1 GPC-5	Acute inflammation.	Morphology of exudative inflammation, types (serous, fibrinous, purulent, putrefactive, hemorrhagic, catarrhal, mixed).
6.	UK-1 GPC-5	Chronic inflammation.	Morphology of productive inflammation (interstitial inflammation, granulomatous inflammation, inflammation with the formation of polyps and genital warts).
7.	UK-1 GPC-5	Adaptation and adaptive processes.	Hypertrophy. Hyperplasia. Atrophy. Metaplasia. Dysplasia. Compensation. Regeneration. Sclerosis.
8.	UK-1 GPC-5	Tumors. General provisions. Tumors of mesenchymal derived tissues. Tumors from melanin-forming tissue.	Principles of classification of tumors. Theory of tumor progression. Types of tumor growth. Mature and immature tumors from mesenchymal derived tissues. Nevus, melanoma.
9.	UK-1 GPC-5	Tumors from the epithelium.	Mature and immature tumors from multilayered squamous and glandular epithelium – morphology, localization,

			degree of differentiation, prognosis.
10.	UK-1 GPC-5	Cancer of individual localizations.	Cancer of the esophagus, stomach, breast, uterus – relevance, precancerous processes, anatomical, histological forms, localization of early, late metastases, causes of death.
11.	UK-1 GPC-5	Tumors of hematopoietic and lymphoid tissue.	Leukemia – classification principles, clinical and morphological features of different types, prognosis. Lymphogranulomatosis – variants according to Lewkis, prognosis.
12.	UK-1 GPC-5	Diseases of the cardiovascular system	Atherosclerosis. Hypertension. Coronary heart disease. Cerebrovascular diseases. Rheumatism. Acquired heart defects.
13.	UK-1 GPC-5	Lung diseases.	Lung infections. Pneumonia (croup, bronchopneumonia, intrauterine). Flu. Chronic nonspecific lung diseases. Lung cancer.
14.	UK-1 GPC-5	Diseases of the gastrointestinal tract	Gastritis, peptic ulcer of the stomach and duodenum, appendicitis.
15.	UK-1 GPC-5	Diseases of the liver and biliary tract.	Jaundice, hepatic cell insufficiency (massive progressive liver necrosis), hepatitis, cirrhosis of the liver, cholelithiasis.
16.	UK-1 GPC-5	Kidney diseases.	Acute renal failure (necrotic nephrosis), nephrotic syndrome, glomerulonephritis, amyloidosis of the kidneys, kidney stones.
17.	UK-1 GPC-5	Intestinal infections. Sepsis.	Salmonellosis, typhoid fever, dysentery, cholera, yersiniosis. Sepsis: septicemia, septicopyemia, bacterial endocarditis, chroniosepsis.
18.	UK-1 GPC-5	Tuberculosis.	Primary tuberculosis, hematogenic tuberculosis, secondary tuberculosis.
19.	UK-1 GPC-5	Bacterial and viral infections transmitted by airborne droplets (diphtheria, scarlet fever,	Diphtheria, scarlet fever, measles, meningococcal

	measles, meningococcal infection). HIV infection.	infection.
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CLINICAL PATHOLOGICAL ANATOMY

№	Competence code	Section name of the discipline	The content of the section in teaching units
1.	UK-1 GPC-5	Organization of pathanatomic service in medical institutions (its prospects, further improvement). The importance and role of the pathology service in the health care system (tasks).	Organization of pathanatomic service in medical institutions (its prospects, further improvement). The importance and role of the pathology service in the health care system (tasks). Order of the Ministry of Health No. 667 of 15.10.70, No. 8 of 04.04.83, No. 82 of 29.04.94 "On measures to improve the pathology service". Decision of the Board of the Ministry of Health of 11.11.76. g.
2.	UK-1 GPC-5	Tasks, documentation of PAO medical institutions. The significance and tasks of pathoanatomic autopsy. Execution of the autopsy report.	Organization of pathanatomic service in medical institutions (its prospects, further improvement). The importance and role of the pathology service in the health care system (tasks). Order of the Ministry of Health No. 667 of 15.10.70, No. 8 of 04.04.83, No. 82 of 29.04.94 "On measures to improve the pathology service". Decision of the Board of the Ministry of Health of 11.11.76. g. "On the state and prospects of development of the pathology service in the country (issues of centralization of PAO). Circular letter of the Ministry of Health "On the condition and measures for further improvement of the pathoanatomical service in the RSFSR" dated 28.06.78. Order No. 2 of the Ministry of Health of the RSFSR of 1988 and No. 202 of the Ministry of Health of 1989. Order of the Ministry of Health No. 269-U dated 20.03.89. Order for the Department of Health of the Nizhny Novgorod Region No. 745-B dated 13.10.99. "On the procedure for collecting, transmission of information and registration of AIDS and HIV-infected diseases". Briefly about the development of the autopsy service abroad and in Russia.

		<p>Regulations on PAO medical institutions, its tasks, documentation. Order of the Ministry of Health No. 1092 of 1982 Equipment and equipment of PAO hospital. Instruction “On the procedure for autopsy of corpses in medical institutions, including the procedure for autopsy of corpses of stillbirths and newborns who died in the perinatal period.” Order No. 82 of 29.04.94. The procedure for opening the corpses of patients who died at the medical site. A demonstrative autopsy (in which students take part as assistants). The technique of pathoanatomic autopsy of a corpse, discussion of the found changes.</p> <p>The remaining time from the lesson is used by students for self-recording of the autopsy performed according to the schemes-instructions, medical history, textbook. They make up the text of the protocol and hand it over to the teacher for verification the next day.</p> <p>WHEN THERE IS NO AUTOPSY: The movie “Shore Autopsy Technique”. Familiarity with the work of the regional dissection: equipment and equipment, staff, documentation, study of the provisions of the order of the Ministry of Health No. 82 of 29.04.94</p> <p>WHEN THERE IS NO AUTOPSY: Independent work of students (under the guidance and constant advice of a teacher) to study and solve logical problems, as which the protocols of pathoanatomic autopsy with a clinical extract from the medical history and the final clinical diagnosis are used.</p> <p>Task 1. Based on the information received:</p> <p>A) Formulate a detailed path. anatomical diagnosis in compliance with its structure.</p> <p>B) Write a clinical and anatomical epicrisis.</p> <p>C) Issue a medical certificate of death.</p>
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			<p>Task 2. The enumeration of nosological forms and pathoanatomic processes detected at the pathoanatomic autopsy is given without observing the structure of the diagnosis as a whole. Having discovered defects in the formulation of the diagnosis, correctly formalize a detailed pathoanatomical diagnosis, observing the necessary order, highlighting the underlying disease, its complications, etc.</p> <p>Task 3. In case of insufficiency of sectional material – use archival material of macropreparations with various pathological processes (including drugs from the museum of the department). In this regard - a macroscopic description of the drug is given. - a diagnosis is being made. The correctness of the interpretation of the pathological process on macropreparations is checked during its analysis.</p>
3.	UK-1 GPC-5	Biopsy work.	Types of biopsies, rules for fixing biopsy and surgical material, registration of a referral for histological examination, the procedure for maintaining documentation.

5. Volume of the academic discipline and types of academic work

Type of educational work	Labor intensity		Labor intensity (AH) in semesters	
	volume in credit units (CU)	volume in academic hours (AH)	5	6
Classroom work, including				
Lectures (L)	0,7	26	18	8
Laboratory practicum (LP)*				
Practicals (P)	2,8	102	66	36
Clinic practicals (CP)				
Seminars (S)				
Student's individual work (SIW)	2,4	88	60	28
Student's Research work (R&D)				
Mid-term assessment				
credit/exam (<i>specify the type</i>)	1	36		36
TOTAL LABOR INTENSITY	7	252	144	108

6. Content of the academic discipline

6.1. Sections of the discipline and types of academic work

PATHOLOGICAL ANATOMY

№	Semester	Name of the section of the academic discipline	Types of academic work* (in AH)							
			L	LP	P	CP	S	SIW	total	
1.	5	Pathological anatomy: content, tasks, objects and methods of research. Historical stages of pathology development. Damage and death of cells and tissues: causes, mechanisms, types of irreversible damage. Necrosis. Apoptosis.	1		5				4,5	10,5
2.	5	Reversible damage to cells and tissues. Intracellular and extracellular accumulations due to impaired protein and fat metabolism. Hyaline changes.	1		5				4,5	10,5
3.	5	Morphology of pigment metabolism disorders (hemosiderin, bilirubin, melanin, lipofuscin). Stone formation. Calcification.	2		5				4,5	11,5
4.	5	Circulatory disorders: full blood (arterial, venous), bleeding, hemorrhage, stasis. Violations of the content of tissue fluid.	1		5				4,5	10,5
5.	5	Circulatory disorders: thrombosis, embolism, anemia (ischemia), infarction. DIC syndrome. Shock.	1		5				4,5	10,5
6.	5	Inflammation. Acute inflammation. Morphology of exudative inflammation.	2		5				4,5	11,5
7.	5	Chronic inflammation. Productive inflammation. Adaptation processes. Hypertrophy. Hyperplasia. Atrophy. Metaplasia. Dysplasia.	2		5				4,5	11,5

8.	5	Tumors. General provisions. Tumors of mesenchymal derived tissues. Tumors from melanin-forming tissue.	2		5			4,5	11,5
9.	5	Tumors from the epithelium. Cancer of individual localizations (esophagus, stomach, breast, uterus).	2		5			3,5	10,5
10.	5	Tumors of hematopoietic and lymphoid tissue (leukemia, lymphogranulomatosis).	2		5			4	11
11.	6	Atherosclerosis. Hypertension. Coronary heart disease.	1		5			4	10
12.	6	Cerebrovascular diseases. Rheumatism. Acquired heart defects.	1		5			4	10
13.	6	Lung infections. Pneumonia (croup, bronchopneumonia, intrauterine). Flu. Chronic nonspecific lung diseases. Lung cancer.	2		5			4	11
14.	6	Diseases of the gastrointestinal tract (gastritis, peptic ulcer, appendicitis).	1		5			4	10
15.	6	Diseases of the liver and biliary tract: jaundice, hepatic cell insufficiency (massive progressive liver necrosis), hepatitis, cirrhosis of the liver, cholelithiasis.	1		5			4	10
16.	6	Kidney diseases: acute renal failure (necrotic nephrosis), nephrotic syndrome, glomerulonephritis, amyloidosis of the kidneys, kidney stones.	1		5			4	10

17.	6	Intestinal infections (salmonellosis, typhoid fever, dysentery, cholera, yersiniosis). Sepsis.	1		5			4	10
18.	6	Tuberculosis (primary, hematogenic, secondary).	1		5			4	10
19.	6	Bacterial and viral infections transmitted by airborne droplets (diphtheria, scarlet fever, measles, meningococcal infection). HIV infection.	1		5			4	10
20	6	Organization of pathanatomic service in medical institutions (its prospects, further improvement). The importance and role of the pathology service in the health care system (tasks).			3			4	7
21	6	Tasks, documentation of PAO medical institutions. The significance and tasks of pathoanatomic autopsy. Execution of the autopsy report.			2			3	5
22	6	Biopsy work.			2			2	4
TOTAL			26		102			88	252

L- lectures

LP – Laboratory practicum

P – practicals

Clinic practicals (CP)

Seminars (S)

Student's individual work (SIW)

6.2. Thematic schedule of lectures

№	Name of lecture topics	Volume in AH	
		semester5	semester6
1	Pathological anatomy: content, tasks, objects and methods of research. Historical stages of pathology development. Damage and death of cells and tissues: causes, mechanisms, types of irreversible damage. Necrosis. Apoptosis.	1	
2	Reversible damage to cells and tissues. Intracellular accumulations. Hemosiderosis. Jaundice. Pathological calcification. Hyaline changes.	1	

3	Water-electrolyte balance: characteristics, regulation, violations. Circulatory disorders: venous congestion, bleeding, hemorrhage. Stasis. Thrombosis. Embolism. Ischemia. Infarction.	2	
4	Inflammation. Definition, essence, biological significance. Inflammatory mediators. Local and general manifestations of inflammation. Acute inflammation: etiology, pathogenesis. Morphological manifestations of exudative inflammation. Outcomes of acute inflammation.v	2	
5	Tumors: definition, nomenclature, principles of classification. Characteristics of tumor growth. Molecular bases of carcinogenesis. Antitumor immunity. Tumors are benign and malignant. Nomenclature and morphological features of tumors from mesenchymal tissues. Classification, nomenclature and morphological features of tumors from the epithelium.	2	
6	The doctrine of diagnosis. Definition, principles of construction of clinical and pathoanatomic diagnoses. Causes, categories of discrepancy of diagnoses. The concept of iatrogeny. Vascular diseases. Atherosclerosis and arteriosclerosis. Vasculitis. Etiology, pathogenesis, morphological characteristics. Heart disease. Coronary heart disease. Hypertension. Chronic and acute pulmonary heart.	2	
7	Heart disease. Diseases of the heart valves. Myocardial diseases. Diseases of the pericardium. Rheumatism.	1	
8	Pathology of blood cells and bone marrow. Tumors of hematopoietic tissues. Myeloproliferative diseases. Myelodysplastic syndromes. Tumors from plasma cells. Hodgkin's disease. Non-Hodgkin's lymphomas.	2	
9	Infectious and parasitic diseases. Interaction of the macroorganism and infectious agents. Characteristics of the infectious process.	1	
10	Local and general reactions in infections. Bacteremia. Sepsis as a special form of infection development. Intestinal infections: typhoid fever, cholera, dysentery, salmonellosis, yersiniosis.		1
11	Tuberculosis. Etiology, pathogenesis, morphogenesis, classification, morphological characteristics.		1
12	Bacterial and viral airborne infections. Flu. Parainfluenza. Adenovirus infection. Measles. Scarlet fever. Meningococcal infection. Diphtheria. Legionellosis.		1
13	Respiratory diseases: classification. Acute pneumonias.		1
14	Obstructive and restrictive lung diseases. Tumors of the bronchi and lung.		1
15	Diseases of the gastrointestinal tract: classification. Stomach diseases: gastritis, peptic ulcer (peptic ulcer), stomach tumors.		1
16	Liver diseases: hepatoses, hepatitis, cirrhosis.		1
17	Kidney diseases: classification. Glomerular diseases, acute, rapidly progressive and chronic glomerulonephritis. Nephrotic syndrome. Acute and chronic renal failure. Kidney tumors.		1
	TOTAL (total 34 AH)	18	8

6.3. The thematic plan of laboratory practicums is not provided by the federal state educational standard

6.4. Thematic plan of practicals

п/№	Name of the topics of practicals	Volume in AH	
		semester5	Semester6
1	Pathological anatomy: content, tasks, objects and methods of research. Historical stages of pathology development. Damage and death of cells and tissues: causes, mechanisms, types of irreversible damage. Necrosis. Apoptosis.	5	
2	Reversible damage to cells and tissues. Intracellular and extracellular accumulations due to impaired protein and fat metabolism. Hyaline changes.	5	
3	Morphology of pigment metabolism disorders (hemosiderin, bilirubin, melanin, lipofuscin). Stone formation. Calcification.	5	
4	Circulatory disorders: full blood (arterial, venous), bleeding, hemorrhage, stasis. Violations of the content of tissue fluid.	5	
5	Circulatory disorders: thrombosis, embolism, anemia (ischemia), infarction. DIC syndrome. Shock.	5	
6	Inflammation. Acute inflammation. Morphology of exudative inflammation.	5	
7	Chronic inflammation. Productive inflammation. Adaptation processes. Hypertrophy. Hyperplasia. Atrophy. Metaplasia. Dysplasia.	5	
8	Tumors. General provisions. Tumors of mesenchymal derived tissues. Tumors from melanin-forming tissue.	5	
9	Tumors from the epithelium. Cancer of individual localizations (esophagus, stomach, breast, uterus).	5	
10	Tumors of hematopoietic and lymphoid tissue (leukemia, lymphogranulomatosis).	5	
11	Atherosclerosis. Hypertension. Coronary heart disease.	5	
12	Cerebrovascular diseases. Rheumatism. Acquired heart defects.	5	
13	Lung infections. Pneumonia (croup, bronchopneumonia, intrauterine). Flu. Chronic nonspecific lung diseases. Lung cancer.		5
14	Diseases of the gastrointestinal tract (gastritis, peptic ulcer, appendicitis).		5
15	Diseases of the liver and biliary tract: jaundice, hepatic cell insufficiency (massive progressive liver necrosis), hepatitis, cirrhosis of the liver, cholelithiasis.		5
16	Kidney diseases: acute renal failure (necrotic nephrosis), nephrotic syndrome, glomerulonephritis, amyloidosis of the kidneys, kidney stones.		5

17	Intestinal infections (salmonellosis, typhoid fever, dysentery, cholera, yersiniosis). Sepsis.		5
18	Tuberculosis (primary, hematogenic, secondary).		5
19	Bacterial and viral infections transmitted by airborne droplets (diphtheria, scarlet fever, measles, meningococcal infection). HIV infection.		5
20	Organization of pathanatomic service in medical institutions (its prospects, further improvement). The importance and role of the pathology service in the health care system (tasks).		3
21	Tasks, documentation of PAO medical institutions. The significance and tasks of pathoanatomic autopsy. Execution of the autopsy report.		2
22	Biopsy work.		2
	TOTAL (total - 102 AH)	60	42

6.5. Thematic plan of seminars is not provided by the federal state educational standard

6.6. Types and topics of student's individual work (SIW)

п/№	Types and topics of SIW	Volume in AH	
		semester 5	semester 6
1	Pathological anatomy: content, tasks, objects and methods of research. Historical stages of pathology development. Damage and death of cells and tissues: causes, mechanisms, types of irreversible damage. Necrosis. Apoptosis.	Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal. – 4,5	
2	Reversible damage to cells and tissues. Intracellular and extracellular accumulations due to impaired protein and fat metabolism. Hyaline changes.	Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal – 4,5	
3	Morphology of pigment metabolism disorders	Preparation for practical classes, testing, current	

	(hemosiderin, bilirubin, melanin, lipofuscin). Stone formation. Calcification.	control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4,5	
4	Circulatory disorders: full blood (arterial, venous), bleeding, hemorrhage, stasis. Violations of the content of tissue fluid. Circulatory disorders: thrombosis, embolism, anemia (ischemia), heart attack. DIC syndrome. Shock.	Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4,5	
5	Inflammation. Acute inflammation. Morphology of exudative inflammation.	Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4,5	
6	Chronic inflammation. Productive inflammation. Adaptation processes. Hypertrophy. Hyperplasia. Atrophy. Metaplasia. Dysplasia.	Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4,5	
7	Tumors. General provisions. Tumors of mesenchymal derived tissues. Tumors from melanin-forming tissue.	Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4,5	
8	Tumors from the epithelium.	Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including	

		work with electronic educational resources on the university portal. – 4,5	
9	Cancer of individual localizations (esophagus, stomach, breast, uterus).	Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 3,5	
10	Tumors of hematopoietic and lymphoid tissue (leukemia, lymphogranulomatosis).	Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4	
11	Atherosclerosis. Hypertension. Coronary heart disease.	Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4	
12	Cerebrovascular diseases. Rheumatism. Acquired heart defects.	Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4	
13	Lung infections. Pneumonia (croup, bronchopneumonia, intrauterine). Flu. Chronic nonspecific lung diseases. Lung cancer.		Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4

14	Diseases of the gastrointestinal tract (gastritis, peptic ulcer, appendicitis).		Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4
15	Diseases of the liver and biliary tract: jaundice, hepatic cell insufficiency (massive progressive liver necrosis), hepatitis, cirrhosis of the liver, cholelithiasis.		Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4
16	Kidney diseases: acute renal failure (necrotic nephrosis), nephrotic syndrome, glomerulonephritis, amyloidosis of the kidneys, kidney stones.		Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4
17	Intestinal infections (salmonellosis, typhoid fever, dysentery, cholera, yersiniosis). Sepsis.		Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal. – 4
18	Tuberculosis (primary, hematogenic, secondary).		Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4
19	Bacterial and viral infections transmitted by airborne droplets (diphtheria, scarlet fever, measles, meningococcal		Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational

	infection). HIV infection.		resources on the university portal.– 4
20	Organization of pathanatomic service in medical institutions (its prospects, further improvement). The importance and role of the pathology service in the health care system (tasks).		Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 4
21	Tasks, documentation of PAO medical institutions. The significance and tasks of pathoanatomic autopsy. Execution of the autopsy report.		Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal. – 3
22	Biopsy work.		Preparation for practical classes, testing, current control with the help of lecture materials, textbooks, including work with electronic educational resources on the university portal.– 2
	TOTAL (total - 88 AH)	50	38

7. Types of assessment formats for ongoing monitoring and mid-term assessment

№	Semester No.	Types of control	Name of section of academic discipline	Assessment formats		
				types	number of test questions	number of test task options
1	2	3	4	5	6	7
1.	5	Current monitoring	General pathological anatomy	multiple choice questions	10	Not limited
		Midterm assessment		situational cases	10	40

2.	6	Current monitoring	Systemic pathological anatomy	multiple choice questions	10	Not limited
		Midterm assessment		situational cases	10	
3.	6	Current monitoring	Clinical pathological anatomy	multiple choice questions	10	Not limited
		Midterm assessment		situational cases	10	
4.	6	Exam	All sections of the discipline	multiple choice questions	100	Not limited
				Grosses, slides, situational cases	200	

Examples of evaluation tools :

1. General pathology:

Exudative inflammation:

1. Highlight the phase of the inflammatory reaction

1) fullness of blood 4) repair

2) dystrophy 5) regeneration

3) exudation

2. The main cells in the focus of acute inflammation are

1) monocytes 4) neutrophilic leukocytes

2) macrophages 5) fibroblasts

3) histiocytes

3. What is exudate?

1) edematous fluid

2) inflammatory fluid

3) abnormal fluid containing protein

4) inflammatory fluid with the addition of red blood cells 5) any pathological fluid

4. Specify the type of exudative inflammation

1) serous 4) mucosal

2) granulomatous 5) chronic

3) interstitial

5. Highlight the erroneous name of the type of exudative inflammation
 - 1) serous 4) fibrous
 - 2) purulent 5) putrid
 - 3) fibrinous
6. Localization, in which only diphtheria inflammation develops and there is no croup
 - 1) pleura 4) palatine tonsils
 - 2) peritoneum 5) large intestine
 - 3) pericardium
7. The following type of fibrinous inflammation develops on the oral mucosa:
 - 1) phlegmonous:
 - 2) interstitial;
 - 3) hemorrhagic;
 - 4) putrefactive;
 - 5) diphtheria.
8. With microscopy, purulent exudate is diagnosed by a large number of
 - 1) fibrin 4) lymphocytes
 - 2) neutrophilic white blood cells 5) red blood cells
 - 3) macrophages
9. Specify the name of the purulent inflammation
 - 1) abscess 4) cyst
 - 2) granuloma 5) hematoma
 - 3) anasarca
10. Specify the types of acute catarrhal inflammation
 - 1) serous 4) purulent
 - 2) mucus 5) all of the listed
 - 3) mucopurulent

Exudative inflammation

1. Name the forms (types) of inflammation, depending on the predominance of a particular inflammatory reaction P=2
2. List the morphological types of acute catarrh P=5
3. In the development of what morphological changes is expressed in the restructuring of the mucous membrane in chronic catarrh P=4
4. What are the most frequent outcomes of acute abscess P=3
5. The patient suffered from kidney disease for a long time. He died of uremia (poisoning with nitrogenous slags with insufficient kidney function). At the autopsy, in addition to kidney pathology, fibrinous pericarditis and diphtheria colitis were found.
 1. describe the appearance of the pericardium found at the autopsy P=3
 2. give a name to such a heart P=1
 3. what kind (type) of fibrinous inflammation developed in the pericardium P=1
 4. whether here (the pericardium) to develop another kind of fibrinous inflammation P=1
 5. what outcomes can be fibrinous pericarditis R=2
 6. what morphological changes of the mucosa of the large intestine determines in this case, diphtheric inflammation fibrinous form R=1
 7. could this localization to develop croupous inflammation P=1
 8. what is the outcome of fibrinous inflammation of the colon R=1
 9. what other localization diphtheric inflammation P=4
 10. what was the cause of diphtheria colitis described in the problem P=1

2. Systemic pathology

Tuberculosis

Option 1

1. Name the forms of progression of primary tuberculosis P=4

2. What morphological changes occur during the stabilization and healing of primary tuberculosis foci? P-6
3. What morphological changes are characteristic of tuberculous lymphadenitis / preparation No. 164/ P-2
4. A 60-year-old patient suffered from fibrocavernous pulmonary tuberculosis for a long time, the symptoms of chronic pulmonary-heart failure gradually increased, from which he died.
 - 1) list the main morphological features of this form of tuberculosis P-5
 - 2) describe the structure of the wall of the chronic cavity P-3
 - 3) explain why the patient developed chronic heart failure P-1
 - 4) which part of the heart will be changed more? P-1
 - 5) what are the possible causes of death in secondary tuberculosis? P-5

6.3. Evaluation tools recommended for inclusion in the fund of evaluation tools for the final state certification.

1. Set the match:

1. primary tuberculosis a) acute focal tuberculosis
2. hematogenic tuberculosis b) hematogenically disseminated pulmonary tuberculosis
3. secondary tuberculosis c) growth of primary affect

Correct answer: 1-b 2-b 3-a

2. Establish the correct sequence of events in the development of cervical cancer:

cancer "in situ" grade III
 epithelial dysplasia epithelial dysplasia I, II
 invasive carcinoma
 metastasis

Correct answer: 3, 2, 1, 4, 5

3. Name the morphological type of necrosis:

dry
 wet
 gangrene
 curd
 colliquation

4. Hemorrhage with destruction (necrosis) of the tissue is called:

bruising
 petechiae
 ecchymosis
 hematoma
 hemorrhagic infiltration

5. Complete the:

_____ – this is a focal purulent inflammation with melting of the tissue (necrosis) and subsequent formation of a cavity

Correct answer: abscess

6. Septicemia is characterized by all of the above, except:

rapid rapid course
 development of hemorrhagic syndrome
 necrotic changes in parenchymal organs
 metastatic ulcers
 pronounced hemolytic jaundice

8. Educational, methodological and informational support for mastering the academic discipline (printed, electronic publications, the Internet and other network resources)

8.1. Key literature references

№	Name according to bibliographic requirements	Number of copies	
		at the department	in the library
1.	Robbins Basic Pathology / edited by Vinay Kumar, Abul K. Abbas, Jon C.Aster. - 9 th ed, Elsevier Saunders, 2015, 924 p.	0	100

8.2. Further reading

№	Name according to bibliographic requirements	Number of copies	
		at the department	in the library
1.	Pathological anatomy of general part: manual / A.Artifeksova et al. – Nizhny Novgorod: Publishing House of NNSMA, 2011. – 76 p.	0	50
2.	Pathological anatomy of systemic and infectious diseases: manual / A.Artifeksova et al. – Nizhny Novgorod: Publishing House of NNSMA, 2011. – 48 p.	0	50

8.3. Electronic educational resources for teaching academic subjects

8.3.1. Internal Electronic Library System of the University (IELSU)

<i>Name of the electronic resource</i>	<i>Brief description (content)</i>	<i>Access conditions</i>	<i>Number of users</i>
Internal Electronic Library System (ELS)	The works of the academic staff of the Academy: textbooks and manuals, monographs, collections of scientific papers, scientific articles, dissertations, abstracts of dissertations, patents.	from any computer located on the Internet, using an individual login and password [Electronic resource] – Access mode: http://95.79.46.206/login.php	Not limited

8.3.2. Electronic educational resources acquired by the University

<i>Name of the electronic resource</i>	<i>Brief description (content)</i>	<i>Access conditions</i>	<i>Number of users</i>
Electronic database "Student Consultant"	Educational literature + additional materials (audio, video, interactive materials, test tasks) for higher medical and pharmaceutical education. Publications are structured by specialties and disciplines in accordance with the current federal state educational standards	from any computer located on the Internet, using an individual login and password [Electronic resource] – Access mode: http://www.studmedlib.ru/	General PIMU subscription

Electronic library system "Bukap"	Educational and scientific medical literature of Russian publishers, including translations of foreign publications.	from any computer located on the Internet by login and password, from the computers of the academy. The subscription editions are available for reading. [Electronic resource] – Access mode: http://www.books-up.ru/	General PIMU subscription
«Bibliopisk»	Integrated single window search service for electronic catalogs, electronic library system and full-text databases. The results of a single search in the demo version include documents from domestic and foreign electronic libraries and databases available to the university as part of a subscription, as well as from open access databases.	PIMU has access to the demo version of the Bibliopisk search engine: http://bibliosearch.ru/pimu .	General PIMU subscription
Domestic electronic periodicals	Periodicals on medical subjects and on higher school issues	- from the computers of the academy on the platform of the electronic library eLibrary.RU -journals of the Media Sphere publishing house - from library computers or provided by the library at the request of the user [Electronic resource] – Access mode: https://elibrary.ru/	
International scientometric database "The main collection of Web of Science"	Web of Science covers materials on natural, technical, social, and humanitarian sciences; takes into account the mutual citation of publications developed and provided by Thomson Reuters; has built-in capabilities for searching, analyzing, and managing bibliographic information.	Access is free from PIMU computers [Electronic resource] – Access to the resource at: http://apps.webofknowledge.com	Access is free from PIMU computers

8.3.3 Open access resources

<i>Name of the electronic resource</i>	<i>Brief description (content)</i>	<i>Access conditions</i>
Federal Electronic Medical Library	Includes electronic analogues of printed publications and original electronic publications that have no analogues recorded on other media (dissertations, abstracts, books, journals, etc.).	from any computer located on the Internet

	[Electronic resource] – Access mode: http://нэб.рф/	
Scientific Electronic Library eLIBRARY.RU	The largest Russian information portal in the field of science, technology, medicine and education, containing abstracts and full texts of scientific articles and publications. [Electronic resource] – Access mode: https://elibrary.ru/	from any computer located on the Internet.
Open Access Scientific Electronic Library CyberLeninka	Full texts of scientific articles with annotations published in scientific journals of Russia and neighboring countries. [Electronic resource] – Access mode: https://cyberleninka.ru/	from any computer located on the Internet
Russian State Library (RSL)	Abstracts for which there are copyright agreements with permission for their open publication [Electronic resource] – Access mode: http://www.rsl.ru/	from any computer located on the Internet
Legal reference system "Consultant Plus"	Federal and regional legislation, judicial practice, financial advice, comments on legislation, etc. [Electronic resource] – Access mode: http://www.consultant.ru/	from any computer located on the Internet
Official website of the Ministry of Health of the Russian Federation	National clinical guidelines [Electronic resource] – Access mode: cr.rosminzdrav.ru - Clinical recommendations	from any computer located on the Internet
Official website of the Russian Respiratory Society	Modern materials and clinical recommendations for the diagnosis and treatment of respiratory diseases [Electronic resource] – Access mode: www.spulmo.ru – Russian Respiratory Society	from any computer located on the Internet
Official website of the Russian Scientific Society of Therapists	Современные материалы и клинические рекомендации по диагностике и лечению заболеваний внутренних органов [Электронный ресурс] – Режим доступа: www.rnmot.ru – Российское научное общество терапевтов Modern materials and clinical recommendations for the diagnosis and treatment of diseases of internal organs [Electronic resource] – Access mode: www.rnmot.ru – Russian Scientific Society of Therapists	from any computer located on the Internet

9. Material and technical support for mastering an academic discipline.

9.1. List of premises for classroom activities for the discipline

1. 6 study rooms
2. Conference room
3. Museum of Macropreparations

*specially equipped rooms (classrooms, offices, laboratories, etc.) for lectures, seminars, practical and clinical-practical classes in the study of disciplines, including:

anatomical hall, anatomical museum, corpse storage;
classrooms equipped with simulation equipment;
offices for working with patients receiving medical care.

9.2. List of equipment for classroom activities for the discipline

Multimedia complex (laptop, projector, screen), personal computers in classrooms – 90 pcs, 6 binocular microscopes, monitors, printers. Also 6 binocular microscopes, 1 cryostat, 1 freezing microtome, 1 refrigerator, a set of chemical reagents for the preparation of drugs.

Sets of multimedia visual materials on various sections of the discipline.

Wood boards.

9.3. A set of licensed and freely distributed software, including domestic production

Item no.	Software	number of licenses	Type of software	Manufacturer	Number in the unified register of Russian software	Contract No. and date
1	Wtware	100	Thin Client Operating System	Kovalev Andrey Alexandrovich	1960	2471/05-18 from 28.05.2018
2	MyOffice is Standard. A corporate user license for educational organizations, with no expiration date, with the right to receive updates for 1 year.	220	Office Application	LLC "NEW CLOUD TECHNOLOGIES"	283	without limitation, with the right to receive updates for 1 year.
3	LibreOffice		Office Application	The Document Foundation	Freely distributed software	
4	Windows 10 Education	700	Operating systems	Microsoft	Azure Dev Tools for Teaching Subscription	
5	Yandex. Browser		Browser	«Yandex»	3722	
6	Subscription to MS Office Pro for 170 PCs for FGBOU VO "PIMU" of the Ministry of Health of Russia	170	Office Application	Microsoft		23618/HN10030 LLC "Softline Trade" from 04.12.2020

