EUROPEAN MEDICAL UNIVERSITY

SYLLABUS OF THE EDUCATIONAL DISCIPLINE "PATHOMORPHOLOGY"

Cycle of Higher Education:	**second cycle of higher education (Master's degree)**
Field of Study:	**22 «Healthcare»**
Specialty:	**222 «Medicine»**
Educational qualification:	**Master of Medicine**
Professional qualification:	**doctor**

Dnipro - 2023

Teacher's:
Head of the Department of Fundamental Disciplines with the course of traditional and alternative medicine, Dr. Sci. (Biol.), professor S.S. Ostrovska

1. Name, Code of the discipline and number of credits

SYLLABUS OF THE EDUCATIONAL DISCIPLINE "PATHOMORPHOLOGY"

Cycle of Higher Education: second cycle of higher education (Master's degree)
Field of Study: 22 «Healthcare»
Specialty: 222 «Medicine» (3 course)
Educational qualification: Master of Medicine
Professional qualification: doctor
Semester: 5, 6.
Number of credits ECTS (number of hours): 8 credits ECTS (240 hours).
Distribution by types of trainings and hours of study – Lectures 18 hours, Practical lessons – 111 hours, Independent work – 111 hours.

2. Time and place of educational discipline

Semester: 5, 6.
e-mail: dp1funddis@dmitnm.edu.ua

3, Akademika H. Dzyaka St., Dnipro.

3. Prerequisites and Postrequisites of educational discipline

Prerequisites: anatomy, medical biology, medical chemistry, medical and biological physics, Latin.
Post-qualifications: pathophysiology, forensic medicine, ophthalmology, otorhinolaryngology, oncology and radiation medicine, obstetrics and gynecology, neurology, neurosurgery and other clinical disciplines.

4. Characteristic of the educational discipline

4.1. Purpose and definition of the educational discipline:

The purpose of teaching the discipline "Pathomorphology" is to study the general laws of development of cell pathologies, pathological processes and diseases, that is, general human pathology; study of the structural basis of all varieties of human diseases, the specifics of each disease, the creation of anatomy of a sick person (clinical pathomorphology); formation of a holistic view of the structural basis of diseases, their etiology, pathogenesis for understanding the theoretical foundations of medicine, a more in-depth knowledge of clinical manifestations of diseases, the use of

"Pathomorphology" is an academic discipline that provides an understanding of the structural basis of diseases and pathological processes, highlights structural changes in organelles, cells, intercellular matrix, tissues and organs of a sick person, as well as the causes and mechanisms of death of patients. The macroscopic and microscopic signs of general pathological processes (dystrophies, circulatory disorders, etc.), pathology of various organs, diseases of various etiologies (non-infectious, infectious and parasitic, etc.) are described in detail.

4.2. Tasks of educational "pathomorphology" discipline:

1) study of typical general pathological processes, the totality of which determines the morphological manifestations of diseases; be able to define various pathologies; briefly describe the etiology and pathogenesis, formulate the basic principles of classification, describe the macro- and microscopic picture taking into account age characteristics, name the results, complications and causes of death;
2) be able to explain the patterns of development of various pathologies, interpret the features of macro- and microscopic changes depending on the etiology, form and stage of the disease; conduct differential diagnosis, explain the nature of possible complications and outcomes that have developed in tissues;
3) application of knowledge in practice: to demonstrate mastery of the terminological apparatus of the discipline, to conduct macro- and microscopic description of pathological changes, to mark the detected pathological changes on microphotographs, to solve situational clinical problems using knowledge of pathomorphology;
4) expressing opinions, evaluating ideas and forming conclusions: forming own conclusions based on the results of macro- and microscopic examination, expressing opinions on the functional significance of the detected morphological changes, describing the impact of structural changes in the affected tissue on other organs, systems and the body as a whole;
5) the ability to continue further independent study: to use knowledge of pathomorphology to master post-qualifying clinical disciplines.
6) comparison of morphological and clinical manifestations of diseases, preparation of documentation of the pathology department of a medical institution.

4.3. Competencies and Program learning outcomes.

General competencies (GC):

GC 1	Ability to think abstractly, analyses and synthesize.
GC 2	Ability to learn and master modern knowledge.
GC 3	Ability to apply knowledge in practical situations.
GC 4	Knowledge and understanding of the subject area and understanding of professional activities.
GC 6	Ability to make justified decisions.
GC 10	Ability to use information and communication technologies.

GC 11	Ability to search, process and analyses information from various sources.
GC 12	Certainty and perseverance in relation to the tasks set and responsibilities assumed.

Special (professional, subject) competencies (SC):

SC 2	Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results.
SC 23	Ability to develop and implement scientific and applied projects in the healthcare sector.
SC 24	Compliance with ethical principles when working with patients and laboratory animals.
SC 25	Compliance with professional and academic integrity, being responsible for reliability of the obtained scientific results.

Program learning outcomes (PLO):

PLO 1	Have a thorough knowledge of the structure of professional activity. Be able to carry out professional activities that require updating and integrating knowledge. Be responsible for professional development, the ability to further professional training with a high level of autonomy.
PLO 2	Understanding and knowledge of fundamental and clinical biomedical sciences at a level sufficient to solve professional problems in the field of healthcare.
PLO 3	Specialized conceptual knowledge that includes scientific achievements in the field of healthcare and is the basis for conducting research, critical understanding of problems in the field of Medicine and related interdisciplinary problems.
PLO 7	Prescribing and analyzing additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) (according to list 4), patients with diseases of organs and body systems for differential diagnosis of diseases (according to list 2).
PLO 21	Searching for the necessary information in professional literature and databases of other sources, analyzing, evaluating and applying this information.

4.4 Content of the discipline

Topics of lectures (L)

5th semester

1. Subject and tasks of pathomorphology. Methods of pathomorphological research. The main stages of development of pathomorphology.
2. Alteration. Mechanisms of trophism and metabolic disorders.
3. Disorders of ion-osmotic and water balance. Circulatory disorders: hyperemia, ischemia, heart attack, bleeding, hemorrhage, stasis, plasmorrhage. Disorders of lymphatic circulation.
4. Hemostasis disorders. Thrombosis, DIC syndrome. Embolism. Shock.
5. The general concept of inflammation. Exudative and proliferative inflammation.
6. Processes of adaptation and compensation. Regeneration and repair. Sclerosis. Hypertrophy, atrophy.
7. The general doctrine of tumors. Classification of tumors. Epithelial and mesenchymal tumors.

8. Melanocytic tumors. Tumors of the central nervous system, cranial and paraspinal nerves.
9. Diseases of the blood system, hemoblastosis. Classification, clinical and morphological characteristics.

Topics of practical classes (PC)

5th semester

1. Introduction to pathomorphology. Subject and objectives of pathomorphology. The main stages of development of pathomorphology. Methods of pathological diagnosis. Methods of pathological examination.
2. Morphological changes in cells as a response to stress and toxic damage (parenchymal / cellular dystrophies). Cellular dystrophies: hyaline-droplet, hydropic, fatty.
3. Morphological changes in the stroma as a response to damage (stromal-vascular dystrophies). Pathomorphology of accumulation of complex proteins (hyalinosis) and lipids. Exhaustion of the body.
4. Pathomorphology of accumulation of metabolic products (endogenous and exogenous pigments). Disorders of iron metabolism and metabolism of hemoglobinogenic pigments. Pathomorphological manifestations of impaired melanin formation, nucleoprotein and copper metabolism. Calcification (calcification) of tissues. Formation of stones.
5. Fundamentals of thanatology. Necrosis. Clinical and morphological forms of necrosis. Selective death of specialized cells: pathogen-induced apoptosis, selective cell death induced by the immune system and cell destruction by activated complement
6. Disorders of ionic-osmotic and water balance, acid-base state. Acute systemic circulatory disorders (acute coronary insufficiency, shock) and systemic circulatory disorders in chronic heart failure and their consequences. Regional circulatory disorders (hyperemia, ischemia, plasmorrhage, bleeding and hemorrhage). Disorders of lymph formation and circulation.
7. Hemostasis disorders: hemorrhagic syndrome, thrombosis, DIC syndrome. Embolism. Pulmonary embolism, thanatogenesis.
8. Final lesson: "Alteration. Disorders of blood and lymph circulation". Autopsy. Practical skills.
9. Inflammation: causes, morphogenesis. Pathomorphology of exudative inflammation.
10. Proliferative (productive) inflammation: with the formation of acute condylomas, around parasitic animals, intermediate productive inflammation, granulomatous inflammation. Specific proliferative inflammation
11. Molecular and pathomorphological basis of the immune response. Immune system in the prenatal and postnatal period. Pathology of immune processes: amyloidosis, hypersensitivity reactions, transplant rejection reaction. Immune deficiency. Autoimmune diseases.
12. Regeneration. Structural basis of physiological adaptation of organs and cells. Morphology of cellular adaptation processes. Compensatory and adaptive processes.

13. Final lesson: "Inflammation. Immunopathological processes. Regeneration, adaptation and compensation processes". Autopsy. Practical skills.
14. Oncogenesis. Anatomical and microscopic features and types of growth of benign and malignant tumors. Morphological characteristics of the main stages of development of malignant tumors. Clinical and morphological nomenclature of tumors. Tumors of the epithelium: benign organ-neoplastic epithelial tumors, cancer (features of development, metastasis, histological forms).
15. Benign and malignant non-epithelial (mesenchymal) tumors. Sarcoma: features of development and metastasis. Tumors of fibroblasts.
16. Melanocytic tumors. Features of tumors of childhood. Embryonic tumors. Germ cell tumors. Teratomas and teratoblastomas. Tumors of the "adult type".
17. Tumors of the central nervous system (astroglial, oligodendroglial, ependymal, neuronal, meningeal), cranial and paraspinal nerves.
18. Tumors of hematopoietic tissue. Tumors of lymphoid tissue.
19. Final lesson: "Tumors of various localizations". Autopsy. Practical skills.
20. Summary control.

6th semester

1. Arteriosclerosis and atherosclerosis.
2. Hypertension and arteriolosclerosis. Hypertension (essential hypertension) and symptomatic arterial hypertension.
3. Ischemic heart disease.
4. Systemic connective tissue diseases with autoimmunity (rheumatic diseases): rheumatism, systemic lupus erythematosus, rheumatoid arthritis, systemic scleroderma, dermatomyositis, Bechterev's disease.
5. Acute inflammatory lung diseases. Chronic nonspecific lung diseases.
6. Final lesson. Practical skills: "Diseases of the cardiovascular system. Diseases of the respiratory system".
7. Diseases of the esophagus, stomach and intestines.
8. Diseases of liver and pancreas.
9. Diseases of the kidneys.
10. Diseases of the endocrine glands. Hypothalamic-pituitary disorders. Pathology of the adrenal glands.
11. Pathology of the thyroid gland.
12. Pathology of the endocrine apparatus of the pancreas.
13. Final lesson. Practical skills: "Diseases of the digestive system. Diseases of the genitourinary system. Diseases of the endocrine system. Diseases of the musculoskeletal system"
14. General concepts of human infectious pathology. Classification of infectious diseases. Viral airborne droplet infections. HIV infection and AIDS.
15. Intestinal infectious diseases: cholera, typhoid fever, dysentery.
16. Childhood infections: diphtheria, scarlet fever, meningococcal infection.
17. Tuberculosis. Syphilis. Sepsis.
18. The final lesson. Practical skills: "Pathomorphology of infectious processes. Sepsis".

19. Summary control.

Topics for independent work (IW)

5th semester

1. Elements of ultrastructural pathology of the cell. Cell-matrix interactions.
2. General characteristics of thesaurismoses (hereditary enzyme disorders). Cystic fibrosis.
3. Disorders of copper metabolism. Hepatocerebral dystrophy (Wilson-Konovalov disease).
4. Disorders of K+ and Na+ metabolism.
5. Disorders of coagulation and hemostasis - thrombocytopathy and thrombocytopenia. Causes, mechanisms of development, morphological changes. Hemophilia.
6. Nonspecific granulomatous diseases. Sarcoidosis.
7. Congenital immunodeficiency syndromes.
8. Plasma cell tumors (myeloma, solitary plasmacytoma), primary Waldenström's macroglobulinemia, Franklin's heavy chain disease.
9. Diseases of the blood system. Anemia. Causes. Pathogenesis, types, classification. Anemia due to blood loss (posthemorrhagic); disorders of hematopoiesis and increased blood destruction (hemolytic).
10. Preparation for the licensing exam Step 1 in the discipline "Pathomorphology": module 1 "General pathomorphology".

6th semester

1. Endocarditis. Fibroplastic parietal endocarditis. Causes of development, morphological changes, consequences. Myocarditis. Idiopathic myocarditis. Causes, mechanism of development. Morphology, consequences. Congenital heart disease. Causes of acquired heart disease, pathogenesis, morphological characteristics. Cardiomyopathy: dilated, hypertrophic, restrictive. Causes, pathogenesis, morphological changes in the heart and other organs.
2. Vasculitis. Causes, mechanism of development, morphological changes in vessels and organs; consequences. Nonspecific aortoarteritis (Takayasu disease). Temporal arteritis (Horton's disease); nodular periarteritis; Wegener's granulomatosis. Obliterating thrombangitis (Burger's disease). Primary and secondary vasculitis.
3. Rheumatoid arthritis. Bekhterev's disease. Systemic lupus erythematosus. Systemic scleroderma. Dermatomyositis. Sjögren's syndrome. Etiology, pathogenesis. Morphological changes in organs. Complications, causes of death.
4. Sore throat. Cause. Mechanism of development, types: primary and secondary; acute and chronic sore throat. Pathological anatomy, complications. Diseases of the salivary glands. Sialoadenitis. Mixed adenoma of the parotid salivary gland.
5. Pathomorphology of diseases associated with nutrition. Avitaminosis. Rickets. Etiology, pathogenesis, pathological anatomy, complications, causes of death. Scurvy. Etiology, pathology, complications. Xerophthalmia. Etiology, pathogenesis,

pathology. Pelagra. Etiology, pathogenesis, pathology, complications. Vitamin B12 and folic acid deficiency. Morphology.
6. Tumors of the kidneys. Benign tumors, Wilms' tumors. Renal cell carcinoma. Causes, pathomorphology, features of metastasis. Cancer of the renal pelvis.
7. Parathyroid glands. Hyperparathyroidism. Causes, mechanism of development, morphological changes. Parathyroid osteodystrophy. Etiology, pathogenesis, morphological characteristics, complications and consequences.
8. Hypoparathyroidism. Morphological characteristics. Pathology of the endocrine apparatus of the pancreas. Hypothalamic-pituitary disorders.
9. Diseases of the musculoskeletal system (parathyroid osteodystrophy, osteopetrosis, Paget's disease, fibrous dysplasia, osteomyelitis, joint diseases, muscular dystrophy, myasthenia gravis). Hyperparathyroidism: morphological changes in bones. Paget's disease: morphological characteristics, complications.
10. Diseases of the central nervous system. Alzheimer's disease. Amyotrophic lateral sclerosis. Etiology, pathogenesis, morphological characteristics, complications, consequences. Multiple sclerosis. Etiology, pathogenesis, morphological characteristics, complications. Tick-borne encephalitis.
11. Diseases of the male reproductive system.
12. Intestinal bacterial infectious diseases. Salmonellosis, yersinosis. Etiology, pathogenesis, morphological manifestations, complications.
13. Pathomorphology of viral (typhus), bacterial (salmonellosis, yersinosis) and parasitic diseases (malaria, balantidiasis, amoebiasis, trichinosis, echinococcosis, cysticercosis, opisthorchiasis, schistosomiasis): etiology, pathogenesis.
14. Preparation for the licensing exam Step 1 in the discipline "Pathomorphology".

4.5 Credit structure of “pathomorphology” discipline.

Table of contents section 1. "Alternation. Disorders of blood and lymph circulation"					
Topics of Lecture	**Hours**	**Topics of Classes**	**Hours**	**Topics of IW**	**Hours**
Subject and tasks of pathomorphology. Methods of pathomorphological research. The main stages of development of pathomorphology.	2	Introduction to pathomorphology. Subject and tasks of pathomorphology. The main stages of development of pathomorphology. Methods of pathological diagnosis. Methods of pathomorphological examination.	2	-	-

Alteration. Mechanisms of trophism and metabolic disorders.	2	Morphological changes in cells as a response to stress and toxic damage (parenchymal/cellular dystrophies). Cellular dystrophies: hyaline droplet, hydropic, fatty.	2	Elements of ultrastructural pathology of the cell. Cell-matrix interactions.	4
-	-	Morphological changes in the stroma as a response to damage (stromal-vascular dystrophies). Pathomorphology of the accumulation of complex proteins (hyalinosis) and lipids. Exhaustion of the body.	2	General characteristics of thesaurismoses (hereditary enzyme disorders). Cystic fibrosis.	4
-	-	Pathomorphology of the accumulation of products of impaired metabolism (endogenous and exogenous pigments). Disorders of iron metabolism and metabolism of hemoglobinogenic pigments. Pathomorphological manifestations of impaired melanin formation, nucleoprotein and copper metabolism. Calcification (calcification) of tissues. Formation of stones.	2	Copper metabolism disorders. Hepatocerebral dystrophy (Wilson-Konovalov disease).	5
-	-	Fundamentals of thanatology. Necrosis. Clinical and morphological forms of necrosis. Selective death of specialized cells: pathogen-induced apoptosis, selective cell death induced by the immune system and cell destruction by activated complement.	2	-	-
Ion-osmotic and water balance disorders. Circulatory disorders: hyperemia, ischemia, heart	2	Disorders of ionic-osmotic and water balance, acid-base state. Acute systemic circulatory disorders (acute coronary insufficiency, shock) and systemic circulatory disorders in chronic heart failure and their consequences. Regional circulatory disorders	2	Disorders of K+ and Na+ metabolism.	5

attack, bleeding, hemorrhage, stasis, plasmorrhage. Disorders of lymphatic circulation.		(hyperemia, ischemia, plasmorrhage, bleeding and hemorrhage). Disorders of lymph formation and circulation.			
Hemostasis disorders. Thrombosis, internal combustion engine syndrome. Embolism. Shock.	2	Hemostatic disorders: hemorrhagic syndrome, thrombosis, DIC. Embolism. Pulmonary embolism, thanatogenesis	3	Disorders of coagulation and hemostasis - thrombocytopathies and thrombocytopenias. Causes, mechanisms of development, morphological changes. Hemophilia.	5
-	-	The final lesson: "Alternation. Disorders of blood and lymph circulation". Autopsy. Practical skills.	3	-	-
Hours	**8**		**18**		**23**
Total hours	**49 hours**				
Content section 2. "Inflammation. Immunopathological processes. Regeneration, adaptation and compensation processes"					
General concept of inflammation. Exudative and proliferative inflammation.	2	Inflammation: causes, morphogenesis. Pathomorphology of exudative inflammation.	3	-	-
	-	Proliferative (productive) inflammation: with the formation of sharp condylomas, around parasitic animals, intermediate productive inflammation, granulomatous inflammation. Specific proliferative inflammation	3	Nonspecific granulomatous diseases. Sarcoidosis.	5

-	-	Molecular and pathomorphological basis of the immune response. Immune system in the prenatal and postnatal period. Pathology of immune processes: amyloidosis, hypersensitivity reactions, transplant rejection reaction. Immune deficiency. Autoimmune diseases	3	Congenital immunodeficiency syndromes.	5
Adaptation and compensation processes. Regeneration and repair. Sclerosis. Hypertrophy, atrophy.	2	Regeneration. Structural basis of physiological adaptation of organs and cells. Morphology of cellular adaptation processes. Compensatory and adaptive processes	3	-	-
-	-	The final lesson: "Inflammation. Immunopathological processes. Regeneration, adaptation and compensation processes". Autopsy. Practical skills.	3	-	-
Hours	**4**		**15**		**10**
Total hours	**29 hours**				
Content section 3. "Tumors of different localizations"					
The general doctrine of tumors. Classification of tumors. Epithelial and mesenchymal tumors.	2	Oncogenesis. Anatomical and microscopic features and types of growth of benign and malignant tumors. Morphological characteristics of the main stages of development of malignant tumors. Clinical and morphological nomenclature of tumors. Tumors of the epithelium: benign organ-neoplastic epithelial tumors, cancer (features of development, metastasis, histological forms)	3	Plasma cell tumors (myeloma, solitary plasmacytoma), primary Waldenström's macroglobulinemia, Franklin's heavy chain disease.	5
-	-	Benign and malignant non-epithelial (mesenchymal)	3	-	-

		tumors. Sarcoma: features of development and metastasis. Tumors of fibroblastic, myofibroblastic and fibrohistiocytic genesis. Tumors of adipose and muscle tissue, tumors of blood vessels			
Melanocytic tumors. Tumors of the central nervous system, cranial and paraspinal nerves.	2	Melanocytic tumors. Features of tumors of childhood. Embryonal tumors. Germ cell tumors. Teratomas and teratoblastomas. Tumors of the "adult type".	3	-	-
-	-	Tumors of the central nervous system (astroglial, oligodendroglial, ependymal, neuronal, meningeal), cranial and paraspinal nerves	3	-	-
Diseases of the blood system, hemoblastosis. Classification, clinical and morphological characteristics.	2	Tumors of hematopoietic tissue. Tumors of lymphoid tissue	3	Diseases of the blood system. Anemia. Causes. Pathogenesis, types, classification. Anemia due to blood loss (posthemorrhagic) ; disorders of hematopoiesis and increased blood destruction (hemolytic).	5 5
-	-	Final lesson: "Tumors of different localizations". Autopsy. Practical skills	3	Preparation for the Licensing Exam Step 1 in the discipline "Pathomorpholog"	5

				: Part 1 "General Pathomorphology"	
-	-	Summary control	3	-	-
Hours	**6**		**21**		**15**
Total hours	**42 hours**				
Content section 4. "Diseases of the cardiovascular system. Diseases of the respiratory system"					
-	-	Arteriosclerosis and atherosclerosis. Hypertension and arteriolosclerosis.	3	-	-
		Hypertension (essential hypertension) and symptomatic arterial hypertension.	3	-	-

		Coronary heart disease.	3	Endocarditis. Fibroplastic parietal endocarditis. Causes of development, morphological changes, consequences. Myocarditis. Idiopathic myocarditis. Causes, mechanism of development. Morphology, consequences. Congenital heart disease. Causes of acquired heart disease, pathogenesis, morphological characteristics. Cardiomyopathies: dilated, hypertrophic, restrictive. Causes, pathogenesis, morphological changes in the heart and other organs.	5

-	-	Systemic connective tissue diseases with autoimmunization (rheumatic diseases): rheumatism, systemic lupus erythematosus, rheumatoid arthritis, systemic scleroderma, dermatomyositis, Bechterev's disease.	3	Vasculitis. Causes, mechanism of development, morphological changes in vessels and organs; consequences. Nonspecific aortoarteritis (Takayasu disease). Temporal arteritis (Horton's disease); nodular periarteritis; aortoarteritis (Takayasu disease). Temporal arteritis (Horton's disease); nodular periarteritis; Wegener's granulomatosis. Obliterating thrombangitis (Burger's disease). Primary and secondary vasculitis.	5
-	-	-	-	Rheumatoid arthritis. Bekhterev's disease. Systemic lupus erythematosus. Systemic scleroderma. Dermatomyositis. Sjögren's syndrome. Etiology, pathogenesis. Morphological changes in organs. Complications, causes of death.	5

-	-	-	-	Sore throat. Cause. Mechanism of development, types: primary and secondary; acute and chronic sore throat. Pathological anatomy, complications. Diseases of the salivary glands. Sialoadenitis. Mixed adenoma of the parotid salivary gland.	4
-	-	Acute inflammatory lung diseases. Chronic nonspecific lung diseases.	3	-	-
-	-	Final lesson. Practical skills: "Diseases of the cardiovascular system. Diseases of the respiratory system"	3	-	-
Hours	**-**		**18**		**14**
Total hours	**32 hours**				
Content section 5. "Diseases of the digestive system. Diseases of the genitourinary system. Diseases of the endocrine system. Diseases of the musculoskeletal system"					
-	-	Diseases of the esophagus, stomach and intestines.	3	Pathomorphology of nutrition-related diseases. Avitaminosis. Rickets. Etiology, pathogenesis, pathological anatomy, complications, causes of death. Scurvy. Etiology, pathology, complications. Xerophthalmia. Etiology, pathogenesis, pathology.	4

				Pelagra. Etiology, pathogenesis, pathology, complications. Vitamin B12 and folic acid deficiency. Morphology.	
-	-	Diseases of liver and pancreas.	3	-	-
-	-	Diseases of the kidneys.	3	Tumors of the kidneys. Benign tumors, Wilms' tumors. Renal cell carcinoma. Causes, pathomorphology, features of metastasis. Cancer of the renal pelvis.	4
-	-	Diseases of the endocrine glands. Hypothalamic-pituitary disorders. Pathology of the adrenal glands. Pathology of the thyroid gland.	3	-	-
-	-	-	-	Parathyroid glands. Hyperparathyroidism. Causes, mechanism of development, morphological changes.	4
-	-	Pathology of the thyroid gland.	3	Hypoparathyroidism. Morphological characteristics. Pathology of the endocrine apparatus of the pancreas. Hypothalamic-pituitary disorders.	4
-	-	-	-	Diseases of the musculoskeletal system	4

				(parathyroid osteodystrophy, osteopetrosis, Paget's disease, fibrous dysplasia, osteomyelitis, joint diseases, muscular dystrophy, myasthenia gravis). Hyperparathyroidism: morphological changes in bones. Paget's disease: morphological characteristics, complications.	
-	-	Pathology of the endocrine apparatus of the pancreas.	3	-	-
-	-	-	-	Diseases of the central nervous system. Alzheimer's disease. Amyotrophic lateral sclerosis. Etiology, pathogenesis, morphological characteristics, complications, consequences. Multiple sclerosis. Etiology, pathogenesis, morphological characteristics, complications. Tick-borne encephalitis.	4
-	-	Final lesson. Practical skills: "Diseases of the digestive system. Diseases of the genitourinary system. Diseases of the endocrine system. Diseases of the musculoskeletal system"	3	Diseases of the male reproductive system.	5

Hours	**-**		**21**		**34**
Total hours	**55 hours**				
Content section 6: "Pathomorphology of infectious processes. Sepsis"					
-	-	General concepts of human infectious pathology. Classification of infectious diseases. Viral airborne droplet infections. HIV infection and AIDS.	3	- -	- -
-	-	Intestinal infectious diseases: cholera, typhoid, dysentery.	3	Intestinal bacterial infectious diseases. Salmonellosis, yersinosis. Etiology, pathogenesis, morphological manifestations, complications.	5
-	-	-	-	Pathomorphology of viral (typhus), bacterial (salmonellosis, yersinia) and parasitic diseases (malaria, balantidiasis, amoebiasis, trichinosis, echinococcosis, cysticercosis, opisthorchiasis, schistosomiasis): etiology, pathogenesis.	5
-	-	Childhood infections: diphtheria, scarlet fever, meningococcal infection.	3	-	-

-	-	Tuberculosis. Syphilis. Sepsis.	3	-	-
-	-	Final lesson. Practical skills: "Pathomorphology of infectious processes. Sepsis".	3	-	
-	-	Summary control.	3	Preparation for the licensing exam Step 1 in the discipline of Pathomorphology.	5
Hours	**-**		**18**		**15**
Total hours	**33 hours**				
All for discipline:	**18**		**111**		**111**
	240 hours				

The topics of the lecture course in the third year reveal the problematic issues of the relevant sections of Pathomorphology.

Practical classes in the third year involve theoretical substantiation of the main issues of the topic and the acquisition of the following practical skills:

List of practical skills to be mastered:

1. Interpret and describe changes in the electronograms "Pathology of mitosis", "Pathology of the cytoskeleton, "Pathology of cell junctions", "Mitochondrial hyperplasia", "Hyperplasia of the granular endoplasmic reticulum of the cell", "Nuclear inclusions".

2. Interpret microscopic changes in protein, fat and carbohydrate accumulations. Describe and sketch microscopic specimens "Hyaline droplets in the epithelium of the proximal tubule of the kidney", "Squamous cell carcinoma of the skin", "Liver steatosis", "Fatty myocardial degeneration", "Glycogen in the kidney", "Hyalinosis of splenic arterioles", "Arteriolosclerotic nephrosclerosis", "Obesity of the heart". Describe and interpret macroscopic changes in the skin in generalized ichthyosis, liver in its steatosis and describe the macro preparations "Goose liver", "Tiger heart", "Large white kidney", "Spleen in Gaucher disease".

3. Describe and interpret hemosiderosis by macropreparations "Brown lung induration", "Spleen hemosiderosis", "Hemosiderosis of the liver"; interpret skin

changes in melanoma, nevus and Adison's disease, describe macro preparations "Melanoblastoma of the skin", "Melanoblastoma liver metastasis"; interpret macroscopic changes in the heart in lipofuscin metabolism disorders, describe macro preparation "Brown myocardial atrophy".

4. Interpret microscopic changes in hemosiderosis, describe and draw the micrograph "Brown lung induration"; microscopic changes in melanoma, describe and draw the micrographs "Melanoblastoma of the skin", "Melanoblastoma of the eye".

5. Interpret macroscopic changes in organs during calcification, describe macropreparations "Metastatic calcification of the atrium", "Metastatic calcification of the lungs", "Calcified uterine fibroid", "Lithopedion"; interpret changes in stone formation, describe macropreparations "Gallbladder stones", "Kidney stones", "Bladder stones", "Sialolith".

6. Interpret microscopic changes in the epithelium of the renal tubules and in the walls of blood vessels in metastatic calcification, describe and draw a microscope "Metastatic calcification of the kidney in parathyroid dystrophy"; describe and draw a macro preparation "Calcified uterine fibroid".

7. Interpret changes in a cell during apoptosis on an electron micrograph. Describe the electron micrograph "Apoptotic body" (Crown's body in hepatitis).

8. Describe and interpret macroscopic changes in various clinical and morphological forms of necrosis, describe macropreparations "Noma of the cheek of a child with measles", "Myocardial infarction", "Splenic infarction", "Kidney infarction", "Wet gangrene of the foot", "Dry gangrene of the lower limb", "Pressure ulcers".

9. Interpret necrotic changes in the epithelium of the renal tubules by microscopic picture. Describe and draw micrographs "Necrosis of the epithelium of the proximal renal tubules", "Caseous necrosis in tuberculous lymphadenitis".

10. Interpret and describe the second stage of thrombus formation on the electronogram "The second stage of thrombus formation".

11. Describe and interpret macroscopic changes in chronic venous hemorrhage, describe macropreparations "Nutmeg liver", "Brown lung induration", "Cyanotic

spleen induration", "Cyanotic kidney induration"; describe and interpret macroscopic changes in hemorrhagic erosion of the stomach, chronic gastric ulcer with vascular arosis and bleeding, speckled hemorrhage in the brain, hemorrhagic pachymeningitis, mullet hematoma, intracerebral hematoma; describe and interpret macroscopic changes in thrombosis, describe macropreparations "Parietal mixed thrombus in the aorta in atherosclerosis", "TELA", "Flowing red thrombus in the aortic bifurcation (Larisch syndrome)", "Thrombosis of varicose veins of the lower extremities", "Chronic heart aneurysm with parietal thrombus", "Hemorrhagic pulmonary infarction", "Ischemic infarction with hemorrhagic myocardial coronary artery", "Ischemic splenic infarction", "Postinfarction brain cyst".

12. Interpret microscopic changes in chronic venous hemorrhage, describe and draw microscopic specimens "Nutmeg liver", "Brown lung induration", "Stasis in the capillaries of the brain", "Spot hemorrhages in the brain", "Deep vein thrombi of the lower extremities", "Hemorrhagic pulmonary infarction".

13. Interpret and describe the mechanism of exudate formation from the electronograms "Pinocytosis in the endothelium of the vessel during inflammation", "Emigration of neutrophil through the vessel wall during inflammation".

14. Describe and interpret macroscopic changes in organs in inflammation by macropreparations "Croup pneumonia (stage of gray hepatization)", "Fibrinous purulent pericarditis", "Diffuse purulent leptomeningitis", "Hemorrhagic leptomeningitis", "Abscesses in the brain", "Diphtheric colitis", "Hand phlegmon", "Lung abscess", "Purulent osteomyelitis", "Catarrhal gastritis"; describe and interpret macroscopic changes in organs in productive inflammation, describe macro preparations "Cardiosclerosis", "Micronodular (portal) cirrhosis of the liver", "Condyloma", "Small intestinal polyp", "Miliary pulmonary tuberculosis", "Echinococcosis of the liver", "Echinococcosis of the spleen"

15. Interpret microscopic changes in various types of exudative inflammation, describe and draw microscopic specimens "Croup pneumonia (gray hepatization stage)", "Diffuse purulent leptomeningitis", "Fibrinous purulent pericarditis", in case of productive specific and nonspecific inflammation by microsections

"Cardiosclerosis", "Micronodular cirrhosis of the liver", "Miliary pulmonary tuberculosis".

16. Describe and interpret macroscopic changes in organs by macropreparations "Timomegaly", "Persistent thymus gland", "Hashimoto's thyroiditis", "Lupus nephritis", "Rheumatic endocarditis", "Chronic gastritis"; describe and interpret macroscopic changes in type II hypersensitivity reaction using the macro preparation "Large variegated kidney"; describe and interpret macroscopic changes in organs in amyloidosis using the macro preparations "Amyloidosis of the spleen (spleen with fatty and sebaceous spleen)", "Amyloidosis of the liver", "Amyloidosis of the kidneys", "Amyloidosis of the lungs".

17. Interpret and draw microscopic changes in the microdissection "Chronic decompensated tonsillitis"; interpret and draw microscopic changes in type I hypersensitivity reaction in the microdissection "Bronchial biopsy in bronchial asthma", type III in the microdissection "Lupus nephritis", type IV in the microdissection "Viral active hepatitis"; describe, interpret and sketch microscopic changes in organs in amyloidosis using microscopic specimens "Amyloidosis of the spleen (splenic and sebaceous spleen)", "Amyloidosis of the liver", "Amyloidosis of the kidneys", "Amyloidosis of the lungs".

18. Describe, interpret changes in cardiomyocytes in hypertrophy by electron microscopy "Myocardial hypertrophy".

19. To describe and interpret macroscopic changes in organs by macropreparations "Concentric cardiac hypertrophy", "Eccentric myocardial hypertrophy", "Postinfarction cardiosclerosis", "Senile spleen atrophy", "Hydronephrosis", "Acromegaly", "Splenomegaly", "Pulmonary emphysema", "Elephantiasis of the lower extremity", "Hydrocephalus", "Brown myocardial atrophy".

20. Describe, interpret and sketch microscopic changes in organs using microscopic specimens "Myocardial hypertrophy", "Glandular cystic endometrial hyperplasia", "Granulation tissue", "Large-focal cardiosclerosis", "Pulmonary emphysema".

21. Interpret ultrastructural changes of a tumor cell by the electronogram "Ultrastructural atypism of a tumor cell".

22. Describe and characterize benign tumors of smooth muscle tissue "Uterine leiomyoma", fibrous tissue "Skin fibroma", "Uterine fibroma", adipose tissue "Lipoma", blood vessels "Cavernous hemangioma of the liver", lymphatic vessels "Lymphangioma"; describe and characterize a malignant tumor of bone tissue "Sarcoma of the thigh", "Sarcoma of the foot", of fibrous tissue "Fibrosarcoma of the upper extremity".

23. Describe, interpret and sketch microscopic changes in a benign tumor of smooth muscle tissue "Uterine leiomyoma", of blood vessels "Cavernous hemangioma of the liver"; in a malignant tumor of connective tissue "Undifferentiated fibrosarcoma".

24. Describe and characterize a malignant tumor of melanin-forming tissue by the macro preparation "Skin melanoma", lymph node by the macro preparation "Melanoblastoma metastasis to the lymph node", liver by the macro preparation "Melanoblastoma metastasis to the liver"; describe and characterize benign and malignant tumors of the central and peripheral nervous system using macro preparations "Meningioma", "Ependymoma", "Choroid papilloma", "Astrocytoma", "Glioblastoma", "Neurofibroma", "Neurofibromatosis".

25. Describe, interpret and draw microscopic changes in malignant tumors of melanin-forming tissue "Skin melanoma", "Eye melanoma"; describe, interpret and draw microscopic changes in benign and malignant tumors of the central and peripheral nervous system using microscopic specimens "Meningioma", "Glioblastoma", "Neurofibroma".

26. Describe and characterize benign and malignant tumors of the epithelium by macropreparations "Skin papilloma", "Bladder papilloma", "Gastric polyps", "Small intestine polyp", "Ovarian cystadenoma", "Breast fibroadenoma", "Stomach cancer", "Breast cancer", "Uterine cancer", "Ovarian cystic carcinoma".

27. Describe, interpret and sketch microscopic changes in benign and malignant tumors of the epithelium on microsections "Skin papilloma", "Gastric adenocarcinoma", "Squamous cell carcinoma of the cervix".

28. Describe and characterize a dysontogenetic tumor using the macro specimen "Mature teratoblastoma".

29. Describe and interpret changes in the bone marrow by the macro preparation "Bone marrow in anemia"; describe and interpret changes in the kidneys by the macro preparation "Extra-osseous hematopoiesis in the kidneys in chronic anemia"; in hemolytic anemia by the macro preparation "General hemosiderosis".

30. Describe, interpret and sketch microscopic changes in the liver in chronic anemia using the microscopic specimen "Fatty liver".

31. Describe the blast cell in leukemia by the electron micrograph "Blast cell in leukemia".

32. Describe and interpret changes in the brain in acute leukemia by the macro preparations "Petechial hemorrhages in the brain"; describe and interpret changes in the palatine tonsils by the macro preparation "Necrotic sore throat in acute leukemia"; Changes in lymph nodes in the macro specimen "Lymph nodes in lymphocytic leukemia"; changes in the spleen in the macro specimen "Splenomegaly in myeloid leukemia"; changes in lymph nodes and spleen in the macro specimens "Lymphogranulomatosis", "Porphyric spleen".

33. Describe, interpret and draw microscopic changes in the liver using the micrographs "Chronic myeloid leukemia", "Acute lymphocytic leukemia"; describe, interpret and draw microscopic changes in the lymph nodes using the micrographs "Lymphogranulomatosis".

34. Describe and interpret changes in the endothelium on the electron micrograph "Pre-lipid stage of atherosclerosis".

35. Describe and interpret changes in atherosclerosis by macropreparations "Atherosclerosis of the aorta", "Atherosclerosis of the aorta with abdominal aneurysm", "Atherocalcinosis of the aortic arch", "Atherosclerosis of the cerebral vessels", "Stenotic atherosclerosis of the coronary artery of the heart with thrombosis

and heart attack", "Atherosclerosis of the renal arteries", "Leriche syndrome", "Gangrene of the foot in atherosclerosis of the vessels of the lower extremities"; describe and interpret changes in the heart by macro preparations "Myocardial hypertrophy", "Transmural myocardial infarction", "Large-focal cardiosclerosis", "Small-focal cardiosclerosis", "Chronic heart aneurysm", "Atherosclerotic nephrosclerosis".

36. Describe, interpret and sketch changes in organs using microscopic specimens "Lipoidosis of the aorta", "Stenotic atherosclerosis of the coronary artery", "Necrotic stage of myocardial infarction", "Large-focal cardiosclerosis".

37. Describe and interpret changes in cardiomyocytes according to the electron micrograph "Myocardial hypertrophy"; changes in the arterial wall according to the electron micrograph "Arterial spasm".

38. Describe and interpret changes in macropreparations "Hemorrhage in the brain", "Ischemic cerebral infarction", "Postinfarction cyst of the brain", "Concentric cardiac hypertrophy", "Eccentric cardiac hypertrophy", "Primary shrunken kidney".

39. Describe, interpret and sketch changes in the microsections "Arteriolosclerotic nephrosclerosis", "Myocardial hypertrophy", "Hemorrhagic cerebral infarction".

40. Describe and interpret fibrinoid changes in the endocardium in rheumatism by electron micrographs.

41. Describe and interpret changes in macropreparations "Acute warty endocarditis", "Reverse warty endocarditis", "Fibroblastic endocarditis", "Mitral valve stenosis", "Fibrinous pericarditis", "Primarily shrunken kidney in lupus glomerulonephritis".

42. Describe, interpret and sketch changes in organs using microscopic specimens: "Acute warty endocarditis", "Lupus nephritis", "Periarterial sclerosis in the spleen in lupus erythematosus", "Autoimmune mumps in Sjögren's disease".

43. Describe and interpret changes in macro preparations "Croupy pneumonia in the stage of gray hepatization", "Bronchopneumonia", "Chronic bronchitis with bronchiectasis and pneumosclerosis", "Pulmonary heart", "Lung abscess", "Idiopathic fibrous alveolitis", "Pulmonary emphysema", "Renal amyloidosis"; "Central lung cancer, Peripheral lung cancer.

44. Describe, interpret and sketch changes in the lungs using micrographs "Focal pneumonia", "Bronchiectasis and pneumosclerosis", "Chronic obstructive pulmonary emphysema".

45. Describe and interpret changes in macro preparations "Chronic atrophic gastritis", "Chronic gastric ulcer", "Chronic gastric ulcer penetrating into the pancreas", "Chronic gastric ulcer with vascular arosis", "Phlegmonous appendicitis", "Gastric polyposis", "Exophytic gastric cancer", "Diffuse gastric cancer", "Gastric cancer metastasis to the liver", "Gastric cancer metastasis to the ovaries (Krukenberg ovarian cancer)", "Colon polyposis", "Sigmoid colon cancer".

46. Describe, interpret and sketch changes in organs using microscopic specimens: "Chronic gastric ulcer in the acute stage", "Hemorrhagic erosion of the stomach", "Acute phlegmonous appendicitis", "Chronic atrophic gastritis with intestinal metaplasia", "Helicobacter pylori in B-gastritis".

47. Describe and interpret the changes in the electronogram "Hydropic degeneration of hepatocytes in viral hepatitis".

48. Describe and interpret changes in macropreparations "Toxic liver dystrophy", "Small-nodular liver cirrhosis", "Muscular cirrhosis", "Biliary cirrhosis", "Esophageal varices", "Chronic calculous cholecystitis", "Hemorrhagic pancreatic necrosis, Liver steatosis, Large nodular cirrhosis, Liver with mechanical jaundice, Multicentric liver cancer with cirrhosis, Cancer metastases in the liver, Pancreatic head cancer.

49. Describe, interpret and sketch changes in the liver and pancreas using microscopic specimens: "Biliary cirrhosis of the liver", "Toxic liver dystrophy", "Acute viral hepatitis (liver biopsy)", "Chronic viral hepatitis with minimal activity (liver biopsy), Chronic viral hepatitis with high activity (liver biopsy)), Alcoholic monolobular cirrhosis, Hemorrhagic pancreatic necrosis, Chronic pancreatitis.

50. Describe and interpret changes in the organs of the endocrine system by macro preparations "Pancreatic atrophy in diabetes mellitus", "Gangrene of the foot in diabetes mellitus", "Skeleton in acromegaly", "Colloidal goiter, Adrenal adenoma,

Corticosteroma, Bone in parathyroid dystrophy, Papillary thyroid cancer, Autoimmune thyroiditis Hashimoto.

51. Describe, interpret and sketch changes in organs using microscopic specimens: "Macrofollicular colloidal goiter", "Intracapillary diabetic glomerulosclerosis", "Pancreatic atrophy in diabetes mellitus", "Hashimoto's autoimmune thyroiditis".

52. Describe and interpret the changes in the electronogram "Membranous nephropathy".

53. Describe and interpret changes in the kidneys by macropreparations "Post-infectious glomerulonephritis", "Rapidly progressive glomerulonephritis", "Chronic glomerulonephritis", "Chronic pyelonephritis", "Renal amyloidosis", "Secondary shrunken kidney", "Hydronephrosis", "Urolithiasis", "Polycystic kidney disease".

54. Describe, interpret and sketch changes in the kidneys using microscopic specimens "Mesangiocapillary glomerulonephritis", "Rapidly progressive extracapillary glomerulonephritis", "Renal amyloidosis", "Membranous nephropathy", "Secondary shrunken kidney due to chronic glomerulonephritis", "Necrotic nephrosis", "Renal atrophy in hydronephrosis".

55. Describe and interpret changes in macro preparations "Fibrinous colitis in dysentery", "Brain-like edema of group follicles of the small intestine in typhoid fever", "Small intestine ulcer in typhoid fever", "Splenic hyperplasia in typhoid fever", "Chronic polypoid ulcerative colitis", "Follicular ulcerative typhlite in dysentery".

56. Describe, interpret and sketch changes in various parts of the intestine and other organs using microscopic specimens: "Cerebellar edema of group follicles of the small intestine in typhoid fever", "Hyperplasia of the mesothelial lymph node in typhoid fever", "Fibrinous colitis in dysentery", "Diphtheric ulcerative colitis in dysentery", "Appendicitis in yersinia".

57. Describe and interpret changes in organs by macro preparations "Hemorrhagic laryngotracheobronchitis in influenza", "Hemorrhagic pneumonia in influenza", "Spleen in typhoid fever", "Pneumocystis pneumonia in a patient with AIDS".

58. Describe, interpret and sketch changes in organs using microscopic specimens "Serous-desquamative pneumonia", "Viral-bacterial pneumonia", "Typhoid encephalitis", "Typhoid exanthema".

59. Describe and interpret changes in organs by macro preparations "Laryngotracheobronchitis in measles", "Bronchopneumonia in measles", "Cheek noma in measles", "Diphtheria zeva", "Croupy laryngotracheobronchitis", "Heart in diphtheria", "Necrotic sore throat in scarlet fever", "Purulent leptomeningitis", "Hemorrhagic necrotic skin rash in meningococcemia", "Adrenal hemorrhage (Waterhouse-Friedericksen syndrome)", "Acute glomerulonephritis".

60. Describe, interpret and sketch changes in organs using microscopic specimens: "Laryngeal diphtheria", "Peribronchial giant cell pneumonia in measles", "Parenchymal myocarditis", "Purulent leptomeningitis", "Necrotic sore throat in scarlet fever", "Intracapillary proliferative glomerulonephritis after scarlet fever".

61. Describe and interpret changes in organs by macro preparations "Primary tuberculosis complex (pulmonary and intestinal)", "Healed pulmonary affect (Gon's focus)", "Myenteric tuberculosis of the lungs", "Myenteric tuberculosis of the kidney", "Myenteric tuberculosis of the spleen", "Tuberculous caseous lymphadenitis", "Acute pulmonary cavity", "Tuberculous caseous pneumonia", "Fibrous cavitary pulmonary tuberculosis", "Cirrhotic pulmonary tuberculosis", "Tuberculoma", "Tuberculous leptomeningitis", "Tuberculous spondylitis".

62. Describe, interpret and sketch changes in organs using microscopic specimens "Healed pulmonary affect (Gon's focus)", "Miliary pulmonary tuberculosis", "Tuberculous caseous lymphadenitis", "Cavity wall in fibrous-cavitary pulmonary tuberculosis", "Tuberculous caseous pneumonia".

63. Describe and interpret changes in organs in visceral and congenital syphilis using macropreparations "Syphilitic mesoaortitis", "Liver solitary glands", "Lobular liver in syphilis", "Placenta and macerated fetus in early congenital syphilis".

64. Describe, interpret and sketch changes in organs using micrographs "Syphilitic mesoaortitis".

65. To describe and interpret changes in organs by macropreparations "Septic endometritis", "Embolic purulent nephritis", "Polyposis ulcerative endocarditis", "Purulent leptomeningitis", "Metastatic brain abscesses", "Metastatic lung abscesses", "Septic spleen", "Ulcerative skin lesions in chroniosepsis", "Shock kidney".
66. Describe, interpret and sketch changes in organs using microscopic specimens: "Embolic purulent nephritis", "Polypoid ulcerative endocarditis", "Septic endometritis", "Interstitial productive myocarditis", "Shock kidney", "Purulent leptomeningitis", "Necrotic nephrosis".
67. Describe and interpret changes in organs by macro preparations "Hemorrhagic leptomeningitis", "Anthrax skin carbuncle".
68. Describe, interpret and sketch changes in the microdissection "Enteritis in cholera".
69. Describe and interpret changes in the organs in macropreparations "Single-chamber echinococcus of the liver", "Multichamber echinococcus of the liver", "Brain in cysticercosis", "Spleen in malaria".
70. Describe, interpret and draw changes in the microscope slide "Chamber wall and elements of echinococcus".

The independent work of the student involves preparation for practical classes and the final class, mastering topics for independent work, writing a medical history, preparing abstracts, presentations, tables. The control of mastering the topics of practical classes and independent work is carried out during practical classes and the final class and exam in the discipline.

Individual work includes the study of scientific literature, preparation of reviews on the topics provided for presentation, scientific and practical research, participation in specialized competitions, scientific and practical conferences, competitions of research papers.

Methodological recommendations for practical classes, independent work, and lecture materials are posted on the department's website.

Route for receiving materials: Website of EMU/Student / Department of Fundamental Disciplines with a course of traditional and alternative medicine/ Educational and methodological support of the Department/ Pathomorphology/ or follow the link Department of fundamental disciplines with a course in traditional and alternative medicine, discipline " Pathomorphology". Materials are accessed from the student's Office 365-based corporate account.

5. Forms and methods of monitoring learning success

Current control in practical classes	Methods: individual oral survey, structured written works, test tasks with the choice of correct answers.
Control of mastering the thematic section of the discipline in intermediate control classes	Methods: oral or written survey, electronic testing, *methods of self-control and self-assessment*.
Final semester control	According to the regulation on control measures in EMU (regulation of EMU)
Final control of the discipline - *exam*	Methods: by exam cards in the form of an oral exam, monitoring of acquiring of practical skills (According to the Regulation on control measures in EMU (Regulation of EMU).
Tools for diagnosing learning success	Theoretical questions, tests, clinically oriented situational tasks, practical tasks, demonstration of practical skills.

6. Evaluation criteria

Knowledge assessment is carried out according to regulation on control measures in EMU (regulation of EMU).

Current control	According to the four-point system of traditional grades: 5 "Excellent", 4 "Good", 3 "Satisfactory", 2 "Unsatisfactory"
Control of practical skills	According to the four-point system of traditional grades
Exam	Based on a 200-point scale (the sum of points for the current academic activity of the student, the result of passing the exam and for successful completion of an individual task, if any) Credited: 120 to 200 points Not credited: less than 120 points (see Rating scale)

Final control for the discipline	The final control of students' academic performance is carried out after completing the study of the discipline and is implemented in the form of an exam.
Discipline assessment:	The score on the discipline is determined based on the results of assessment of current activities and is expressed using a **fourpoint scale**: ("Excellent", "Good", "Satisfactory", "Unsatisfactory"), multi-point scale and ECTS. The assessment in the discipline consists of an assessment of the current academic performance and the result of passing the exam (in points), which is set when evaluating theoretical knowledge and practical skills in accordance with the list defined by the discipline program. The number of points that the applicant scored for current academic.
	performance in the discipline is defined as the arithmetic mean of the number of points that the applicant received during the study of the discipline (practical, seminar, laboratory classes, etc.). The resulting value of the average traditional rating is converted to points according to the scale of conversion of traditional ratings to rating points. The maximum number of points is 200.

Matching grades on a 200-point scale, a 4-point (traditional) scale, and ECTS scale

On a 200-point scale	**Rating on a 4-point scale**
180–200	Excellent
140–179	Good
120–139	Satisfactory
0–119	Unsatisfactory

On a 200-point scale	**ECTS evaluation**
192–200	A
172–191	B
148–171	C
128–147	D
120–127	E
0–119	F

Discipline/course policy

The student has the right to receive high-quality educational services, access to up-to-date scientific and educational information, qualified advice during the study of the discipline and mastering practical skills. The policy of the department in the

provision of Educational Services is student-centered, based on the regulatory documents of the Ministry of Education and the Ministry of Health of Ukraine, the Charter of the EMUand the procedure for providing educational services regulated by the regulation on the organization of the educational process in the EMUand the principles of academic integrity.

Compliance with the EMUschedule, safety precautions in the classroom. Requirements for preparing for practical classes.

Students should arrive at classes on time, without being late. A student who is more than 10 minutes late for classes is not allowed in and must work it out in accordance with the established procedure. During practical classes, the student must wear a work uniform (medical gown, cap). Students who do not have a work uniform are not allowed to attend classes. The student must follow the safety rules during practical classes and while staying in the Department's premises. When discussing theoretical issues, students should demonstrate tolerance, politeness and respect for their colleagues and the teacher; when performing practical tasks, the workplace should be kept in order and cleaned after completing practical work.

Use of mobile phones and other electronic devices. The use of mobile phones and other electronic devices in the classroom is not allowed, only during Distance Learning, provided that it is technically necessary.

Academic integrity. When studying the discipline, the student should be guided by the following regulations: on academic integrity of EMU (regulation of EMU). In case of violation of the regulations of academic integrity during the current and final controls, the student receives a grade of "2" and must work it out to the teacher in accordance with the established procedure.
Regulation on control measures in EMU (Regulation of EMU).

Skipping classes. Missed classes should be worked out in accordance with the procedure established in the regulations on control measures in the EMU (regulation

of EMU) during the time determined by the work schedule (Department of fundamental disciplines with a course in traditional and alternative medicine) to the teacher on duty. To work out a missed lesson the student must pass a test and answer in writing or verbally the question on the topic of the lesson.

Procedure for admission to the final control in the discipline is given in the regulations on control measures and regulations on the organization of the educational process in the EMU (regulation of EMU) and regulations on control measures in the EMU (regulation of EMU). Students who do not have missed not worked out practical classes and lectures and have received an average traditional grade of at least "3" are allowed to participate in the final control.

Additional individual points. Points are awarded subject to the mandatory participation of the head, head teacher and teacher. These points are encouraging and are added once to the total score of the current academic performance and the result of passing the comprehensive exam. Their total number for one student should not exceed 10, and the final amount of points for an academic discipline should not exceed 200 points.

Individual tasks include:

1) writing essays and creating multimedia presentations with reports at meetings of the student scientific group of the department – 3 points;
2) participation in the creation of tables, graphological structure, posters on the topics of practical classes – 2 points;
3) participation in the student competition in the discipline at the First Stage – 1 point;
4) participation/prize-winner of the All-Ukrainian student competition in the discipline - 7/10 points;
5) author or co-author of abstracts/article – 2/5 points;
6) author or co-author of an oral/information stand report at a scientific conference – 6/3 points;

7) author of a student scientific paper accepted for participation or awarded by a diploma of I-III degree in the All – Ukrainian competition of student scientific papers at Stage II - 8 (participation) or 10 (diploma) points.

Resolving conflict issues. If there are misunderstandings and complaints against the teacher due to quality of educational services provided, knowledge assessment, and other conflict situations, the student must first report his/her claims to the teacher. If the conflict issue is not resolved, the student has the right to submit an appeal to the head of the department in accordance with the regulations on consideration of applications from applicants for higher education in EMU (regulation of EMU), Regulations on consideration of applications, complaints, and proposals of students in EMU (regulation of EMU), Regulations on meeting the requirements of the organization of the educational process (regulation of EMU), Regulation on the appeal of the results of the final control of knowledge of applicants for higher education in EMU (regulation of EMU), Regulations on safe educational environment in EMU (regulation of EMU).

Policy in the context of distance learning. The procedure for distance learning is regulated by regulation of EMU. The main training platforms for conducting training sessions are Microsoft Teams, Zoom. The procedure for conducting practical classes and lectures, working out and consultations during Distance Learning is published on the Department's Web page Department of fundamental disciplines with a course in traditional and alternative medicine.

Feedback from the teacher is provided directly during the lesson and/or consultation, and is also possible via email (in case of force majeure) during working hours.

1. **Training resources**

   Educational and methodological support of the discipline is published on the website of the Department of fundamental disciplines with a course in traditional

and alternative medicine. Consultations are held according to the consultation schedule.

2. **Schedule and distribution of groups by teacher** are published on the Department's Web page (Department of fundamental disciplines)
3. **Questions for intermediate and final control of the discipline** are published on the Department's Web page (Department of fundamental disciplines)

Exam questions:

1. Arterial hemorrhage - causes, types, morphology.
2. Venous anemia general and local, morphology, consequences.
3. Anemia: causes, types, morphological changes in tissues, consequences.
4. Muscular liver, causes, stages.
5. Bleeding and hemorrhage, their causes, types and importance for the body.
6. Thrombosis and thrombus. Thrombus morphology, causes and mechanism of formation, types of thrombus, consequences. The importance of thrombosis for the body.
7. Embolism: causes, types, consequences.
8. Heart attack, its causes, types, consequences.
9. Cellular dysproteinosis: hyaline-droplet, hydropic (hydrocephalus) corneal dystrophy.
10. Mucoid edema, fibrinoid edema (fibrinoid), causes, morphology, consequences.
11. Hyalinosis: causes, morphogenesis, types and consequences.
12. Amyloidosis as a manifestation of tissue dysproteinosis, types of amyloidosis, significance.
13. Morphology of jaundice: causes, types, consequences.
14. Disorders of hemoglobinogenic pigments metabolism: ferritin, hematoidin, hematins. Hemosiderosis: causes, morphology, consequences.
15. Pathology of cytoplasmic lipid metabolism - cell lipidosis. Mechanism of development of cellular lipidosis.
16. Morphology of fatty liver, causes, stages, consequences.
17. Morphology of myocardial fatty dystrophy and cardiac obesity. Causes, mechanisms, consequences.
18. Pathology of neutral fat metabolism. General obesity: classification, causes, pathogenesis, significance for the body.
19. Pathology of glycogen metabolism. Morphology of diabetes mellitus.
20. Disorders of mineral metabolism. calcification. Morphogenesis of stone formation.
21. Necrosis: types, mechanism of development and importance for the body.
22. Death: types, stages of dying, signs of death.
23. Exudative inflammation: its types, morphology, consequences.
24. Morphological characteristics of immune inflammation. Immunodeficiency states.

25. Morphology of common and specific productive inflammation, its types and consequences.
26. The essence of compensatory and adaptive processes, their role in the pathogenesis of diseases. Morphology of myocardial hypertrophy.
27. Metaplasia, its types and significance.
28. Types and biological significance of regeneration. Physiological regeneration.
29. Morphology of reparative and pathological regeneration.
30. Regenerative hypertrophy, its forms - cellular and intracellular hyperplasia.
31. The process of organization and encapsulation, morphology, importance for the body.
32. Morphology of wound healing. Patterns of the wound process.
33. Hypertrophy, its types. Hyperplasia. Atrophy, its types, mechanism of occurrence.
34. Morphological characteristics of benign and malignant tumors.
35. General data on the histogenesis of tumors. Their histogenetic classification.
36. Benign and malignant tumors of epithelial tissue.
37. Benign and malignant tumors of nervous tissue.
38. Benign and malignant tumors of muscle tissue.
39. Benign and malignant tumors of connective tissue.
40. Gastric cancer. Clinical and anatomical classification and characteristics. Patterns of metastasis, complications.
41. Lung cancer. Clinical and anatomical classification.
Root and peripheral lung cancer. The nature of metastasis, complications.
42. Uterine cancer, clinical and anatomical classification and morphological characteristics. Patterns of metastasis, complications of uterine cancer.
43. Breast cancer. Clinical and anatomical classification. Morphology of breast cancer, nature of metastasis, complications.
44. Esophageal cancer. Clinical and anatomical classification, morphology and complications.
45. Leukemia, types, clinical, anatomical and histiogenetic classification. Changes in bone marrow and organs. Etiology and pathogenesis of leukemia.
46. Lymphogranulomatosis. Morphological characteristics of the stages of the disease.
47. Myeloma disease. Morphological characteristics of changes in bones and internal organs.
48. Anemia, types, their causes.
49. Addison-Birmer anemia. Etiology, pathogenesis, morphology.
50. Myocarditis, types, consequences.
51. Pericarditis, types and causes, morphological manifestations, consequences.
52. Atherosclerosis. Etiology, pathogenesis, changes in the walls of blood vessels, phases of their development.
53. CORONARY HEART DISEASE. Myocardial infarction - morphology, consequences.
54. Morphology of acute and chronic heart failure. Cardiosclerosis.

55. Atherosclerosis: etiology, pathogenesis, clinical and morphological forms and their manifestations.
56. Hypertension. Etiology, pathogenesis, morphological changes in blood vessels and organs. The role of hereditary factors in the development of hypertension.
57. Rheumatism (Sokolsky-Buillot disease). Etiology and pathogenesis, morphology, phases of development of rheumatic disorganization of connective tissue and its consequences.
58. Rheumatoid polyarthritis, etiology, pathogenesis, morphological manifestations.
59. Systemic lupus erythematosus, etiology, pathogenesis, morphological changes.
60. Scleroderma, pathogenesis, morphological manifestations.
61. Nodular periarteritis, pathogenesis, morphological manifestations.
62. Bronchopneumonia focal. Classification, etiology, pathogenesis and complications.
63. Croup pneumonia. Pathogenesis, morphology.
64. Chronic nonspecific pneumonia. Chronic bronchitis. Pneumosclerosis, morphological manifestations.
65. Acute and chronic obstructive pulmonary emphysema, its relationship with bronchitis, bronchiolitis and pneumosclerosis.
66. Bronchial asthma, etiology, pathogenesis, morphological manifestations.
67. Gastritis, types, morphology. Complications. Theories of etiology and pathogenesis of peptic ulcer disease.
68. Appendicitis. Etiology, pathogenesis. Clinical and morphological forms. Complications of acute appendicitis.
69. Acute toxic liver dystrophy. Etiology, pathogenesis, morphology.
70. Liver cirrhosis. Classification by etiologic, morphogenetic and functional principles. Morphology of clinical and anatomical variants of liver cirrhosis.
71. Glomerulopathy. Etiology, pathogenesis. Morphology of acute, subacute and chronic glomerulonephritis.
72. Acute renal failure. Etiology, pathogenesis, morphology. Renal and extrarenal manifestations. Complications and consequences.
73. Pyelonephritis. Etiology, pathogenesis, morphology. Complications.
74. Renal stone disease. Morphological characteristics. Complications, consequences.
75. Nephrosclerosis, its types. Morphology of acute and chronic renal failure. Uremia, changes in organs.
76. Hypertrophy of the prostate. Gynecomastia.
77. Glandular hypertrophy of the endometrium. Erosion of the cervix. Mastopathy.
78. Diseases of pregnancy and postpartum period.
79. Diseases of newborns. The role of genetic factors. The concept of chromosomal diseases.
80. Bazedov's disease, endemic goiter, morphological types of goiter.
81. Measles, etiology, pathogenesis, clinical and pathological manifestations of the disease and its complications.
82. Influenza, etiology, pathogenesis, clinical and pathological changes and complications.

83. Viral hepatitis, etiology, pathogenesis, types. Pathomorphology of viral hepatitis and complications.
84. Typhoid fever. Etiology, pathogenesis, pathomorphology, complications.
85. Dysentery. Etiology, pathogenesis, pathomorphology. Pathomorphosis of the disease.
86. Cholera, etiology, pathogenesis, pathomorphology.
87. Plague. Etiology, pathogenesis, pathomorphology.
88. Anthrax. Etiology, pathogenesis, pathomorphology.
89. Scarlet fever. Etiology, pathogenesis, pathomorphology. Complications.
90. Diphtheria. Etiology, pathogenesis, pathomorphology, complications.
91. Whooping cough (pertussis). Etiology, pathogenesis, pathomorphology.
92. Syphilis. Etiology, pathogenesis, pathomorphology of primary, secondary and tertiary periods of the disease.
93. Cerebrospinal epidemic meningitis. Etiology,
pathomorphology.
94. Tuberculosis. Etiology, pathogenesis, pathomorphology of primary tuberculosis.
95. Pathomorphology of hematogenous tuberculosis, complications.
96. Addison's disease, its pathomorphology.
97. Pathology of secondary tuberculosis. Pathomorphosis of tuberculosis.
98. Sepsis, etiology and pathogenesis. Differences between sepsis and other infectious diseases.
99. General and local changes in the body in sepsis.
100. Clinical and anatomical forms of sepsis. Pathomorphology of septicemia, septicemia and chronic sepsis.
101.Prolonged septic endocarditis. Etiology, pathogenesis, morphological
changes in organs. Morphological differential diagnosis with rheumatic endocarditis.
102. Acquired immunodeficiency syndrome, etiology, pathogenesis, morphological changes in lymphatic organs, morphological manifestations of opportunistic infections, Kaposi's sarcoma.
103. Content, objectives, objects and methods of pathomorphological studies.
104. Levels of study of structural bases of diseases.
105. The main stages of development of pathomorphology.
106. The contribution of domestic scientists to the development of world pathomorphology.
107. The concept of ultrastructural pathology of the cell.
108. Morphogenesis and morphology of intracellular and extracellular
accumulation of proteins, carbohydrates and lipids.
109. Morphogenesis and morphology of pathological accumulation of endogenous and
exogenous pigments.
110. Morphogenesis and morphology of mineral metabolism disorders. 111.Damage and death of cells and tissues. Necrosis and apoptosis - morphological manifestations.
morphological manifestations.

112.Structural mechanisms and clinical and pathological characteristics of
of the main periods of thanatogenesis.
113. Death: definition, signs and term of development.
114. Post-resuscitation period: definition, pathological features
damage to vital organs and restoration of their functions.
115. Disorders of blood and lymph circulation. Inflammation.
116. Morphology of ion-osmotic and water balance disorders.
117. Morphology and consequences of disorders in various types of hyperemia.
118. Morphogenesis and pathomorphology of ischemia.
119. Morphogenesis and pathomorphology of infarction.
120. Definition and morphogenesis of types of bleeding, hemorrhage.
121. Morphogenesis, pathomorphology, consequences of stasis.
122. Pathology, consequences of plasmorrhage.
123. Pathology, types, consequences of embolism.
124. Morphogenesis, pathomorphology, consequences of shock.
125. Pathology, consequences of lymphatic disorders.
126. Morphogenesis, pathomorphology, consequences of thrombosis, DIC syndrome.
127. Definition of exudative inflammation. Types, characteristics, clinical significance of exudative inflammation.
128.Definition of proliferative inflammation. Morphological features, consequences of proliferative inflammation.
129. Types, morphological characteristics of granulomatous inflammation.
130.Types, morphological characteristics of specific inflammation.
131. Immunopathological processes. Regeneration, processes of adaptation and compensation.
132. Morphological characteristics of different types of hypersensitivity. Amyloidosis as an immune pathology.
133. Definition, classification and general autoimmune diseases.
134. Definition of secondary immune deficiency.
135. Principles of classification of amyloidosis.
136. Systemic amyloidosis (primary, morphological characteristics).
137. Localized and endocrine amyloidosis: morphological characteristics.
138. Amyloid of aging: morphological characteristics.
139. Definition, types, morphological characteristics of hyperplasia.
140. Definition, types, morphological characteristics of atrophy.
141. Definition, types, morphological characteristics of metaplasia.
142. Phase character of the course of compensation processes in pathological conditions. 143. Definition, types, morphological characteristics of hypertrophy.
144. Morphological and functional features of myocardial hypertrophy.
145. Pathomorphology of maladaptation of the body.
146. Cellular and intracellular forms of regeneration.
147. Types of regeneration: physiological, reparative, pathological.
148. Morphogenesis of the regenerative process.
149. Granulation tissue: morphological characteristics.

150. Types of wound healing.
151. Sclerosis: pathomorphology.
152. Determination of tumor growth.
153. Modern theories of carcinogenesis.
154. Definition of dysplasia, its types, the role of dysplasia in carcinogenesis.
155. Pre-tumor (precancerous) conditions and changes, morphology.
156. Features of the tumor cell.
157. Morphogenesis and histogenesis of tumors.
158. Types of tumor growth.
159. Morphological features of benign tumors.
160. Morphological features of malignant tumors.
161. Metastasis: types, patterns, mechanisms.
162. Systemic non-metastatic effects.
163. General characteristics and nomenclature of tumors from mesenchymal tissues.
164. Morphological features of benign tumors from mesenchymal tissues.
165. Morphological features of malignant tumors from mesenchymal tissues.
166. Ways of sarcoma metastasis.
167. Nomenclature of tumors of nervous tissue.
168. Morphological features of tumors of the central nervous system.
169. Features of metastasis of tumors of the central nervous system.
170. Nomenclature and morphological features of tumors of the autonomic nervous system.
171. Nomenclature and morphological features of tumors of the peripheral nervous system.
172. Nomenclature of tumors originating from melanin-forming tissue. Nevi, their varieties.
173. Morphological features of melanoma, its morphological forms. The importance of pre-tumor changes.
174. Nomenclature of epithelial tumors.
175. Morphological features of epithelial tumors without specific localization: benign (papilloma, adenoma) and malignant (cancer).
176. Histological variants of cancer.
177. Features of cancer metastasis.
178. Features of tumor growth in children compared to adults.
179. Dysontogenetic tumors: hamartomas and hamartoblastomas - morphological manifestations.
180. Teratomas and teratoblastomas - morphological manifestations.
181. Tumors of cambial embryonic tissues - morphological manifestations.
182. Tumors of childhood that develop like adult tumors - morphological manifestations.
183. Diseases of the blood system
184. Definition, classification and morphological characteristics of anemia.
185. Definition, classification, morphological characteristics of thrombocytopenia and thrombocytopathies.
186. Classification, morphological characteristics of coagulopathies.

187. Definition, classification, general morphological characteristics of leukemia.
188. Types, stages of course, morphological characteristics of acute leukemia.
189. Types, stages of course, morphological characteristics of chronic leukemia.
190. Pathological types, morphological characteristics of Hodgkin's disease. Hodgkin's disease, causes of death.
191. General characteristics, classification, morphological manifestations and prognosis of non-Hodgkin's lymphoma.
192. Diseases of the cardiovascular system.
193. Definition of atherosclerosis, risk factors, modern theories.
194. Morphogenesis of macroscopic changes in atherosclerosis.
195. Morphogenesis of microscopic changes in atherosclerosis.
196. Clinical and morphological forms of atherosclerosis, organ damage in atherosclerosis.
197. Definition, risk factors, relationship of coronary heart disease with atherosclerosis and hypertension.
198. Morphology of acute, recurrent and repeated myocardial infarction. 199. Consequences, complications, causes of death in myocardial infarction.
200. Morphological characteristics, complications, causes of death in chronic coronary heart disease.
201. Hypertension: definition, risk factors.
202. Morphological changes in blood vessels, heart, changes in organs in hypertension.
203. Definition, classification of secondary (symptomatic) hypertension.
204. General characteristics of systemic connective tissue diseases: disorders of immune homeostasis and systemic progressive disorganization of connective tissue in rheumatic diseases.
205. Classification, morphogenesis, morphological characteristics of rheumatism.
206. Endocarditis, myocarditis, pericarditis and pancarditis: classification, morphological characteristics, complications.
207. Morphology of joint manifestations (stages of progression of rheumatoid polyarthritis), complications and consequences of rheumatoid arthritis.
208. Pathomorphology of Bekhterev's disease.
209. Morphogenesis, pathomorphology, complications and causes of death in systemic lupus erythematosus.
210. Pathology, visceral manifestations, complications, causes of death in systemic scleroderma.
211. Pathomorphology of dermatomyositis. Complications, causes of death.
212. Pathomorphology of systemic vasculitis: nonspecific aortoarteritis, nodular periarteritis, Wegener's granulomatosis, obliterative thrombangitis.
213. Pathomorphology of Leffler's endocarditis.
214. Pathomorphology of acquired heart disease.
215. Pathomorphology of acquired (secondary) cardiomyopathies.
216. Diseases of the respiratory system.
217. Morphological characteristics of acute bronchitis.
218. Modern classification of pneumonia.

219. Morphological characteristics and complications of lobar pneumonia.
220. Morphological characteristics and complications of acute focal pneumonia.
221. Morphological characteristics and complications of acute interstitial pneumonia.
222. Morphological characteristics of acute destructive processes of the lungs.
223. Definition and classification of chronic nonspecific respiratory diseases.
224. Morphological characteristics and complications of chronic bronchitis.
225. Morphological characteristics of chronic obstructive emphysema.
226. Morphological characteristics and complications of bronchiectasis.
227. Morphological characteristics and complications of bronchial asthma.
228. Morphological characteristics of chronic diffuse interstitial lung diseases.
229. Morphological characteristics of idiopathic pulmonary fibrosis.
230. Morphological characteristics of lung cancer.
231. Diseases of the digestive system
232. Diseases of the esophagus: morphological characteristics.
233. Morphological characteristics of chronic gastritis.
234. Pathomorphology of peptic ulcer disease.
235. Complications of peptic ulcer disease.
236.Gastric cancer. Macroscopic and histological forms. Features of metastasis.
237. Pathomorphology of ulcerative colitis.
238. Pathomorphology of Crohn's disease.
239. Clinical and morphological forms of appendicitis.
240. Complications of appendicitis.
241. Tumors of the intestines.
242. Morphological characteristics, prognosis of fatty hepatosis.
243. Definition, morphological characteristics, prognosis of toxic liver dystrophy.
244. Morphogenesis, forms, morphological characteristics of acute hepatitis.
245. Morphological characteristics of chronic hepatitis, degree of activity and chronicity.
246. Morphological characteristics of the most important types of cirrhosis.
247. Liver cancer, morphological characteristics.
248. Pathomorphology of cholelithiasis.
249. Pathomorphology of acute and chronic cholecystitis.
250. Morphological characteristics, complications of acute and chronic pancreatitis.
251. Tumors of the pancreas, morphological characteristics.
252. Diseases of the endocrine system.
253. Morphological characteristics, complications and causes of death in Itzenko-Cushing's disease.
254. Morphological characteristics, complications of acromegaly.
255. Morphological characteristics of diabetes insipidus.
256. Morphological characteristics of diabetes mellitus.
257. Complications of diabetes mellitus: morphological characteristics of diabetic macro- and microangiopathy.
258. Multinodular goiter. Morphological characteristics, complications, consequences.

259. Graves' disease (diffuse toxic goiter, Bazedov's disease): morphological features of the thyroid gland, visceral manifestations.
260. Hypothyroidism. Cretinism. Myxedema. Morphological characteristics. 261. Definition, pathomorphology of Hashimoto's thyroiditis.
262. Morphological features of primary and secondary hyperparathyroidism.
263. Primary chronic insufficiency of the adrenal cortex (Adison's disease): morphological manifestations.
264. Waterhouse-Friederiksen syndrome: morphological manifestations.
265. Diseases of the genitourinary system.
266. Modern clinical and morphological classification of kidney disease.
267. Post-infectious glomerulonephritis: morphological characteristics.
268. Post-infectious glomerulonephritis: consequences.
269. Chronic glomerulonephritis: morphological characteristics, consequences.
270. Classification, morphological manifestations of idiopathic nephrotic syndrome.
271. Morphological manifestations of membranous nephropathy.
272. Morphological manifestations of focal segmental sclerosis.
273. Morphological characteristics, prognosis of necrotic nephrosis.
274. Morphological characteristics, prognosis of tubulointerstitial nephritis.
275. Morphological characteristics, prognosis of acute and chronic pyelonephritis.
276. Morphogenesis and morphological characteristics of nephrolithiasis, consequences
277. Chronic renal failure. Nephrosclerosis. Pathomorphology.
278. Diseases of pregnancy and the postpartum period.
organs. Classification, morphological diagnosis, complications and consequences of ectopic pregnancy.
279. Classification, morphological characteristics of ORN-gestosis.
280. Classification, morphological characteristics and trophoblastic disease.
281. Morphological characteristics, consequences of inflammatory diseases, precancerous processes of the cervix.
282. Morphological manifestations of inflammatory diseases of the endometrium and myometrium.
283. Morphological manifestations of precancerous processes and tumors of the endometrium and myometrium.
284. Morphological characteristics, complications, consequences of inflammatory diseases of the mammary glands.
285. Morphological characteristics of fibrocystic changes of the mammary glands.
286. Morphological characteristics, complications, consequences of benign prostatic hyperplasia.
287. Morphological characteristics of inflammatory diseases of the testicles.
288. Pathomorphology of infectious diseases. Diseases of the nervous system.
289. General characteristics of the infectious process: entrance gates of infection, primary infectious complex, spread and dissemination, ways of transmission of infectious diseases.
290. Variants of local and general reactions in infections.

291. Morphological characteristics, complications, consequences, causes of death in bacterial dysentery.
292. Morphological characteristics, complications, consequences, causes of death in typhoid fever.
293. Morphological characteristics, complications, consequences, causes of death in salmonellosis.
294. Morphological characteristics, complications, consequences, causes of death in yersinia.
295. Morphological characteristics, complications, consequences, causes of death in respiratory viral infections.
296. Morphological characteristics, complications, consequences, causes of death in typhus.
297. Morphological characteristics, complications of infectious diseases of the brain (viral, tick-borne encephalitis).
298. Morphological characteristics, complications of prion lesions of the central nervous system. 299. Morphological characteristics, complications, causes of death in AIDS.
300. Morphological characteristics, complications, with measles.
301. Morphological characteristics, consequences of infectious mononucleosis.
302. Morphologic characteristics, complications, mumps.
303. Morphological characteristics, complications, diphtheria.
304. Morphological characteristics, complications, in scarlet fever.
305. Morphological characteristics, complications, pertussis, poliomyelitis.
306. Morphological characteristics, complications, in poliomyelitis.
307. Tissue reactions in tuberculosis.
308. Pathomorphology of the primary tuberculosis complex.
309. Morphology of primary tuberculosis progression.
310. Pathology of chronic course of primary tuberculosis.
311. Morphological characteristics, complications, consequences, causes of death in hematogenous tuberculosis with predominant lung involvement.
312. Morphologic characteristics, complications, consequences, causes of death in hematogenous tuberculosis with predominant involvement of internal organs and skeletal system.
313. Morphological characteristics, complications, consequences, causes of death in secondary tuberculosis.
314. Modern pathomorphosis of tuberculosis.
315. Clinical and anatomical forms of sepsis: septicemia, septicemia, septic (infectious) endocarditis.
316. Plague: clinical and morphological forms, complications, causes of death.
317. Tularemia: clinical and morphological forms, causes of death.
318. Anthrax: clinical and morphological forms, causes of death.
319. Cholera: clinical and morphological forms, complications, causes of death.
320. Pathomorphology of congenital syphilis.
321. Pathomorphology of acquired syphilis.

322. Morphological characteristics, complications, consequences, causes of death in malaria.
323. Morphological characteristics of balantidiasis.
324.Morphological characteristics of amebiasis.
325. Morphological characteristics of trichinosis.
326. Morphological characteristics of echinococcosis.
327. Morphological characteristics of cysticercosis.
328. Morphological characteristics of opisthorchiasis.
329. Morphological characteristics of schistosomiasis.
330. Pathomorphology of dermatomycoses.
331. Pathomorphology of actinomycosis.
332. Pathomorphology of candidiasis.
333. Pathology of aspergillosis.
334. General characteristics, classification, background diseases and risk factors of cerebrovascular disease.
335. Cerebral infarction (ischemic stroke): morphological characteristics.
336. Morphogenesis, morphological characteristics of selective neuronal necrosis (ischemic encephalopathy).
337. Morphological characteristics, consequences of hemorrhagic stroke.
338. Morphological characteristics, complications of spontaneous intracranial hemorrhage.
339. Morphological characteristics, complications of spontaneous subarachnoid hemorrhage.
340. Morphological characteristics, complications of Alzheimer's disease.
341. Morphological characteristics, complications of multiple sclerosis.
342. Morphological characteristics, complications of amyotrophic lateral sclerosis.
343. Morphological characteristics, complications of post-resuscitation encephalopathy.
344. Morphological characteristics, complications of diseases of the peripheral nervous system.

List of practical tasks and papers for the exam:

List of macropreparations:

1. Thrombosis of the aorta
2. Thrombus in the vein
3. Thromboembolism of the pulmonary artery
4. Purulent leptomeningitis
5. Hemorrhagic pulmonary infarction
6. Splenic infarction
7. Gangrene of the foot
8. Hyalinosis of the spleen capsule
9. Amyloidosis of the kidney
10. Obesity of the heart

11. Fibrinous pericarditis
12. Putrefactive endometritis
13. Hypertrophy of the heart
14. "Nutmeg" liver
15. Hematoma of the brain
16. Hemopericardium

List of micropreparations:

17. Hydropic degeneration of the kidney
18. Fatty liver (c. Sudan III)
19. Fatty liver (c. g/e)
20. Hyalinosis of the spleen capsule
21. Amyloidosis of the spleen
22. Brown induration of the lungs (Perls score)
23. "Nutmeg" liver
24. Point hemorrhages in the brain
25. Fatty embolism of the lungs (cf. Sudan III)
26. Hemosiderosis of the lungs (c. g/e)
27. Necrosis of the renal tubular epithelium
28. Pancreatic necrosis
29. Thrombus with phenomena of organization
30. Purulent leptomeningitis
31. Abscess of the liver.

7. Recommended literature

1. Sorokina I.V., Markovsky V.D., Halata D.I. Pathomorphology: Textbook - 2nd edition. K., 2020. - 328 p. ISBN 978-617-505-738-4.
2. Kumar V. Robbins Basic Pathology. 9th Edition / Vinay Kumar, Abul Abbas, Jon Aster. – Elsevier. – 2015. – 952 p.
3. Kumar V. Robbins Basic Pathology / Kumar V., Abbas A.K., Aster J.C. – Canada: Elsevier Health Sciences, 2013 – 910 p.
4. Modern Surgical Pathology. 2 edition / N. Weidner, R.J. Cote, S. Suster, L.M. Weiss. – Elsevier. – 2009. – 2233 p.
5. Mohan H. Textbook of pathology 6 edition / H. Mohan. – India, New Delhi: Jaypee Brothers Medical Publishers (P) Ltd. - 2010. – 933 p.
6. Neville B. Neville's Oral and Maxillofacial Pathology – Middle East Adapted Reprint – 1 st Edition/ B. Neville. – Elsevier India. – 2017. – 558 p.
7. Regezi Regezi J. Oral Pathology: Clinical Pathologic Correlations. 7th Edition /Joseph Regezi, James Sciubba, Richard Jordan. – Elsevier. – 2015. – 496 p.
8. Sivapathasundharam B. Shafer's Textbook of Oral Pathology. 8th Edition / B Sivapathasundharam. –Elsevier India. – 2016. – 794 p.

8. Information resources:

1. Testing Center - database of license test tasks "Krok-1"

2. http://library.med.utah.edu/WebPath/webpath.html.
3. http://www.webpathology.com/
4. https://www.geisingermedicallabs.com/lab/resources.shtml .