

MINISTRY OF HEALTH PROTECTION OF UKRAINE
ODESSA NATIONAL MEDICAL UNIVERSITY
Department of normal and pathological clinical anatomy

CONFIRMED by
Acting vice rector for scientific and pedagogical work
Svetlana KOPIZHYNKA
01 September 2022



**WORKING PROGRAM OF EDUCATIONAL DISCIPLINE
"PATHOMORPHOLOGY"**

Level of higher education: second (master's degree)

Field of knowledge: 22 "Health care"

Specialty: 221 "Stomatology"

Educational and professional program : Dentistry

Odesa 2022

The program was compiled on the basis of the educational and professional program "Dentistry", the training of specialists of the second (master's) level of higher education in specialty 221 "Dentistry", field of knowledge 22 "Health care", approved by the Academic Council of ONMedU (minute No. 9 dated June 23, 2022 year).

Developers:

PhD in Medicine, Acting Head of the department, Associate Professor Neskorumna Nataliia

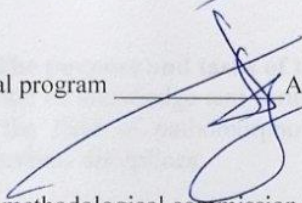
PhD in Medicine, Associate Professor of the department Lytvynenko Marianna

PhD in Medicine, Assistant of Professor of the department Narbutova Tamara

The working program was approved at the meeting of the department of normal and pathological clinical anatomy

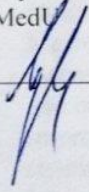
Minute No. 10 dated 27.06.2022

Acting Head of the department  Nataliia NESKOROMNA

Approved by the guarantor of the educational and professional program  Anatoly GULYUK

Approved by the subject-cycle methodological commission for medical and biological disciplines
Minute No. 6 dated June 30, 2022.

Deputy chairman of the subject-cycle methodological commission for medical and biological disciplines of ONMedU

 Leonid GODLEVSKY

Reviewed and approved at the meeting of the department _____
Minute No. ___ of "___" _____ 20__

Head of the Department _____
(signature) (First Name Surname)

Reviewed and approved at the meeting of the department _____
Minute No. ___ of "___" _____ 20__

Head of the Department _____
(signature) (First Name Surname)

1. Description of the academic discipline :

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the academic discipline
The total number of: Credits: 6.0 Hours: 180 Content modules : 6	Branch of knowledge 22 "Health care"	<i>Full-time education</i>
		<i>Compulsory discipline</i>
	Specialty 22 1 " Dentistry "	<i>Coures: 2-3</i>
		<i>Semesters : IV - V</i>
	Level of higher education second (master's)	<i>Lectures (30 hours)</i>
		<i>Seminars (0 hours)</i>
		<i>Practical (80 hours)</i>
		<i>Laboratory (0 hours)</i>
		<i>Independent work (70 hours)</i>
		<i>including individual tasks (0 hours)</i>
	<i>Final control form - exam</i>	

2. The purpose and tasks of the educational discipline

2.1. Purpose: Acquisition of knowledge and formation of elements by the student of higher education professional competences in the field of pathomorphology, and improvement of skills and competences acquired during the study of previous disciplines.

Tasks:

1. Formation of abilities and skills in the differential diagnosis of pathological processes, using the main methods of pathomorphological findings.
2. Mastering the ability to interpret etiology, to determine pathogenesis and pathological changes in diseases at various stages of their development (morphogenesis), structural foundations of complications and consequences of the disease.
3. Improvement of skills to interpret cell pathology and substantiate the clinical and morphological characteristics of general pathological processes that determine the manifestations of diseases.
4. Improving skills to determine the consequences arising from changes in human life conditions and during treatment and diagnostic manipulations.

The process of studying the discipline is aimed at forming elements of the following competencies:

- **General competences (GC):**

- GC 1. Ability to abstract thinking, analysis and synthesis.
- GC 2. Knowledge and understanding of the subject area and understanding of professional activity.
- GC 3. Ability to apply knowledge in practical activities.
- GC 4. Ability to communicate in the state language both orally and in writing.
- GC 5. Ability to communicate in English.
- GC 6. Skills of using information communication technologies.
- GC 7. Ability to search, process and analyze information from various sources
- GC 8. Ability to adaptation and actions in new situations
- GC 9. The ability to identify, pose and solve problems.
- GC 10. The ability to be critical and self-critical.
- GC 11. Ability to work in a team.
- GC 12. Efforts to preserve the environment.

GC 13. The ability to act socially responsibly and consciously.

GC 14. The ability to realize one's rights and responsibilities as a member of society, to understand the values of a civil (free democratic) society and the need for its sustainable development, the rule of law, the rights and freedoms of a person and a citizen in Ukraine.

GC 15. The ability to preserve and multiply moral, cultural, scientific values and achievements of society based on understanding the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, technology and technologies, use different types and forms motor activity for active recreation and leading a healthy lifestyle.

- **Special competences (SC)**

SC 2. Ability to interpret the results of laboratory and instrumental research.

SC 3. The ability to establish a preliminary and clinical diagnosis of the disease.

SC 8. Ability to perform medical manipulations.

SC 14. Ability to keep medical documentation, including electronic forms

Program learning outcomes (PLO):

PLO1. Identify and identify leading clinical symptoms and syndromes. according to standard methods, using preliminary data of the patient's (anamnesis of the deceased), examination data (material, organ, deceased), knowledge about the person, his organs and systems, to establish a patho-anatomical diagnosis.

PLO19. Perform medical manipulations in the conditions of a medical institution .

As a result of studying the academic discipline, the student of higher education must:

Know:

1. Terms that are used in the course of pathomorphology and basic methods of pathological examination.
2. Concepts of etiology, pathogenesis, morphogenesis. pathomorphosis, doctrine of disease, nosology, principles of classification of diseases.
3. The essence and main regularities of general pathological processes.
4. Characteristic changes internal organs in the most important human diseases.
5. To have specialized knowledge about the structural basis of diseases, to know standard methods of conducting an autopsy and intravital diagnosis of diseases.
6. Know the pathogenesis and pathological changes in diseases at different stages of their development (morphogenesis), the structural basis of complications and consequences of the disease;

Be able to :

1. Describe morphological (macroscopic, microscopic and ultrastructural) changes tissues and organs in typical pathological processes and diseases.
2. Based on the description, draw a conclusion about the nature of the pathological process and its clinical features manifestations
3. To appreciate the results of the autopsy.
4. Evaluate morphological changes in biopsy and section materials.
5. Analyze the morphological manifestations of diseases.
6. To analyze the structural basis of the development of diseases and their clinical manifestations, the structural basis of recovery, complications and consequences with further use of the acquired knowledge in the practical work of a doctor.
7. Carry out differential diagnosis between pathological processes.

3. Content of the academic discipline

Content module 1.

Introduction. Morphology of damage and death of cells and tissues.

Topic 1. Introduction to pathomorphology. The subject and tasks of pathomorphology. Pathomorphological research methods. The main stages of the development of pathomorphology.

Morphological changes of cells as a response to stressful and toxic damage (parenchymatous/cellular dystrophies) Cellular dystrophies: hyaline-droplet , hydropic, fatty.

Pathological anatomy as a science, a field of practical medicine and an educational subject. Problems of pathological anatomy. Levels of research on the structural basis of diseases. Material (objects) and methods of pathomorphological research. The main stages of the development of pathological anatomy. Contribution of domestic scientists to the development of world pathomorphology. Definition of the term "dystrophy", causes of dystrophy. Pathogenesis and mechanisms of dystrophy. Classification of dystrophy. Morphogenesis and morphology of parenchymal (intracellular) protein, fat and carbohydrate dystrophies (lipidoses). Elements of ultrastructural cell pathology. Cell-matrix interactions. Cellular and extracellular mechanisms of trophic regulation. The concept of ultrastructural cell pathology. Damage to the cytoplasmic membrane, mitochondria, endoplasmic reticulum, Golgi apparatus, lysosomes. Reversible and irreversible nuclear damage. Damage to mitosis, causes, types.

Topic 2. Morphological changes of the extracellular matrix (stroma) as a response to damage (stromal-vascular dystrophies). Pathomorphology of extracellular accumulation of complex proteins (hyalinosis), fats and carbohydrates. Exhaustion of the body.

Stromal-vascular (extracellular) protein, carbohydrate and fatty dystrophies, varieties, morphology, mechanisms, causes, outcomes.

Topic 3. Pathomorphology of accumulation of products of disturbed metabolism. Disorders of iron metabolism and metabolism of hemoglobinogenic pigments, pathomorphological manifestations of melanin formation disorders, nucleoprotein and copper metabolism. Calcification (calcification) of tissues. Formation of stones.

Definition of mixed dystrophy, classification. Classification of hemoglobinogenic pigments. Types of violations of their metabolism. Violation of the metabolism of lipidogenic pigments. Violation of nucleoprotein metabolism. Disorders of calcium metabolism, types of calcinosis, its causes and morphology.

Topic 4. Necrosis - definition, terms and phases of development, consequences. Clinical and morphological forms of necrosis. Pathological anatomy of multiple organ failure. Fundamentals of Thanatology. Death, mechanisms, signs. Biological, medical, social aspects due to a chronic incurable disease. The concept of thanatogenesis. Structural mechanisms of cessation of activity of vital organs during the natural course of the disease. Complications of stopping the work of the heart, lungs, brain, kidneys, and liver.

Definition of necrosis, its causes, types, depending on the mechanism of action of the pathogenic factor. Morphological signs of necrosis. Early morphological and histochemical changes. Morphological signs of necrosis in the nuclei. Morphological signs of necrosis in the cytoplasm and intercellular substance. Clinical and morphological forms of necrosis. Coagulation necrosis, causes of development, types, microscopic and macroscopic changes in areas of necrosis. Enzymatic and non-enzymatic fat necrosis, localization, causes. Gangrene, definition, classification. Dry and wet gangrene, localization, macroscopic changes in necrotic tissue. Bedsores, features of development, localization. Collective (wet) necrosis, location, macro-microscopic changes. Exits of necrosis. Apoptosis, definition, morphological manifestations of apoptosis. The influence of external factors on the regulation of apoptosis. Categories of autonomous apoptosis. Signs of general death, mechanisms and terms of their development.

Topic 5. Final lesson. (Subsection Introduction. Morphology of injury and death of cells and tissues). Practical experience.

Practicing practical skills.

Content module 2.

Disorders of blood and lymph circulation. Violation of hemostasis. Inflammation.

Topic 6. Acute systemic circulatory disorders (acute coronary insufficiency, shock) and systemic circulatory disorders in chronic heart failure and their consequences. Regional blood circulation disorders (hyperemia, ischemia, plasmorrhagia, bleeding and hemorrhage). Violation of lymph formation and circulation.

Varieties of general arterial full blood. Local arterial congestion, types, causes, morphology. Pathomorphology, consequences of stasis. General venous congestion, types, causes of development, changes in the lungs and liver in chronic venous congestion. Blood thickening, causes, morphological changes in organs. Thinning of the blood, causes, meaning. Bleeding, definition, causes of development, classification. Hemorrhage, types, morphology. Shock, definition, classification. Stages of development of shock, morphological changes. Heart attack, definition, causes. Types of heart attacks. Mechanisms of development and morphological changes in the infarct zone. Disorders of lymphatic circulation, causes, classification. Acute and chronic local lymphedema. Morphology of acute and chronic general lymphedema.

Topic 7. Violations of hemostasis: hemorrhagic syndrome, thrombosis, DIC-syndrome. Embolism. Thromboembolism of the pulmonary artery, thanatogenesis.

Thrombosis, definition, causes and mechanisms of thrombosis. Morphology and types of blood clots. Favorable and unfavorable outputs thrombosis Definition and stages of DIC- syndrome, causes. Definition of embolus, types of embolus. Ways of movement of emboli. Morphology of thromboembolism of the pulmonary artery and vessels of the great circle of blood circulation. Violation of ion-osmotic and water balance. A general idea of edema, composition of tissue fluid, classification, localization of fluid accumulation. Local edema, its regulation, mechanism of development, types. General edema, its varieties and mechanisms of occurrence. Dehydration of the body, mechanisms of development, degrees of dehydration.

Topic 8 . Inflammation: causes, morphogenesis. Pathomorphology of exudative inflammation.

Definition of inflammation, etiology. Morphological signs of inflammation. Morphological changes during alteration, exudation and proliferation. Classification of inflammation by morphology, course and depending on the reactivity of the body. Forms of exudative inflammation.

Topic 9. Proliferative (productive) inflammation: with the formation of acute condylomas, around animal parasites, intermediate productive inflammation, granulomatous inflammation. Specific proliferative inflammation.

General characteristics of productive inflammation, classification, methods. Intermediate (interstitial) inflammation, morphology, outcome. Granulomatous inflammation, definition of granuloma, etiology, stages of granuloma. Productive inflammation with the formation of polyps and acute condylomas; localization, etiology, consequences.

Topic 10. Final lesson. (Subsection Disorders of blood and lymph circulation. Inflammation). Practical experience.

Practicing practical skills.

Content module 3.

Pathology of the immune system. Regeneration. Compensatory and adaptive processes. Tumors

Topic 11. Molecular and pathomorphological bases of the immune response. The immune system in the prenatal and postnatal period. Pathology of immune processes: amyloidosis, hypersensitivity reactions, transplant rejection. Immune deficiency. Autoimmune diseases.

Primary and secondary organs of immunogenesis, their role in the development of immune reactions.

Types of immune reactions. Definition of immunopathological processes, classification. Violations of immunogenesis associated with pathology of the thymus and pathology of peripheral lymphoid tissue. Mechanisms of development of immediate and delayed hypersensitivity reactions. Classification of hypersensitivity reactions. Morphological characteristics of delayed-type hypersensitivity (HDT) and immediate-type hypersensitivity (HIT) reactions. Morphological characteristics of the reaction of transplant rejection. Definition and classification of autoimmune diseases.

Classification of immunodeficiency states. Classification of primary immunodeficiency syndromes. Combined immunodeficiency syndromes, types, state of organs of immunogenesis, clinical manifestations. Syndromes of insufficient cellular and humoral immunity, state of organs of immunogenesis, clinical manifestations. Reasons for the development of secondary immunodeficiency states.

Topic 12. Regeneration. Structural basis of physiological adaptation of organs and cells. Morphology of cell accommodation processes. Compensatory and adaptive processes.

Definition of regeneration, classification. Regulation and phases of the regenerative process. Characteristics of physiological regeneration. Types of reparative regeneration. Characteristics of complete and incomplete regeneration. Pathological regeneration, conditions of occurrence, types. Types of wound healing. Wound healing by primary and secondary tension. The concept of compensation and adjustment. Stages of the compensatory process. Manifestations of adaptive processes. Hypertrophy and hyperplasia, definition, classification. Atrophy, definition, classification. Definition of organization, encapsulation, cirrhosis and sclerosis, morphology. Metaplasia and dysplasia, definition, morphological characteristics. Degrees of dysplasia.

Topic 13. 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. Epithelial tumors: benign organ-nonspecific epithelial tumors, cancer (features of development, metastasis, histological forms).

Nomenclature of epithelial tumors. Morphological features of epithelial tumors without specific localization. Benign and malignant tumors from the covering epithelium. Morphological features of epithelial tumors of individual organs. Benign tumors of the stomach and intestines from Kulchytsky's enterochromaffin cells. Organ-specific tumors of the thyroid gland, kidneys, skin: benign and malignant. Benign and malignant uterine tumors, types, morphology. Tumors of the salivary glands and oral cavity.

Topic 14. Benign and malignant non-epithelial (mesenchymal) tumors. Sarcoma: features of development and metastasis. Tumors of fibroblastic, myofibroblastic and fibrohistiocytic origin. Tumors from adipose and muscle tissue, tumors from blood vessels.

Tumors, definitions, modern theories of carcinogenesis. Tumor morphogenesis, morphogenetic variants of tumor formation. Structure of the tumor. Types of tumor growth. Tumor atypism, definitions, types. Morphological characteristics of tissue and cellular atypism. Precancerous (precancerous) conditions and changes, morphology. Metastasis: types, regularities, mechanisms. Relapse, definition. Modern classification of tumors. Morphological features of benign tumors. Morphological features of malignant tumors. General characteristics and nomenclature of tumors from tissues originating from mesenchyme.

Topic 15. Nomenclature and morphological features of tumors originating from melanin-producing tissue. Nomenclature and morphological features of tumors of the nervous system.

Melanoma, classification. Nevus Classification and morphological features of tumors of the central nervous system. Benign neuroectodermal tumors. Low-differentiated and embryonic neuroectodermal tumors. Benign and malignant tumors of the meninges. Mature and immature tumors of peripheral nerves. Benign and malignant tumors of sympathetic ganglia.

Topic 16. Anemia. Thrombocytopathies.

Definition, classification and morphological characteristics of anemias. Definition, classification, morphological characteristics thrombocytopenia and thrombocytopenia. Classification, morphological characteristics of coagulopathies.

Topic 17. Tumors of hematopoietic and lymphoproliferative tissue.

Definition, classification, general morphological characteristics of leukemias. Types, stages of the course, morphological characteristics of acute leukemia. Types, stages of the course, morphological characteristics of chronic leukemia. Pathohistological types, morphological characteristics of Hodgkin's disease, causes of death. General characteristics, classification, morphological manifestations and prognosis of non-Hodgkin's lymphomas.

Topic 18. Final lesson. (Subsections Immunopathological processes. Regeneration, processes of adaptation and compensation. Tumors). Practical experience.

Practicing practical skills.

Content module 4.

Diseases of the cardiovascular system. Diseases of the nervous system.

Topic 19. Atherosclerosis and arteriosclerosis. Coronary heart disease.

Definition of atherosclerosis, risk factors, modern theories. Morphogenesis of macroscopic changes in atherosclerosis. Morphogenesis of microscopic changes in atherosclerosis. Clinical and morphological forms of atherosclerosis, organ lesions in atherosclerosis. Definition, risk factors, connection of coronary heart disease

with atherosclerosis and hypertension. Morphology of acute, recurrent and repeated myocardial infarction. Consequences, complications, causes of death in myocardial infarction. Morphological characteristics, complications, causes of death in chronic ischemic heart disease.

Topic 20. Hypertension and arteriosclerosis. Hypertensive disease and symptomatic arterial hypertension.

Hypertensive disease: definition, risk factors. Morphological changes in blood vessels, heart, changes in organs in hypertensive disease.

Topic 21. Cerebrovascular disease. Alzheimer's disease. Multiple sclerosis. Amyotrophic lateral sclerosis. Postresuscitation encephalopathy. Diseases of the peripheral nervous system.

General characteristics, classification, background diseases and risk factors of cerebrovascular disease. Infarct (ischemic stroke) of the brain: morphological characteristics. Morphological characteristics, consequences of hemorrhagic stroke. Morphological characteristics, complications of spontaneous intracranial hemorrhage. Morphological characteristics, complications of spontaneous subarachnoid hemorrhage. Morphological characteristics, complications of Alzheimer's disease. Morphological characteristics, complications of multiple sclerosis. Morphological characteristics, complications of ocular amyotrophic sclerosis. Morphological characteristics, complications of post-anime encephalopathy. Morphological characteristics, complications of diseases of the peripheral nervous system.

Topic 22. Systemic diseases of connective tissue with autoimmunization: rheumatism, systemic lupus erythematosus, rheumatoid arthritis, systemic scleroderma, dermatomyositis, Bekhterev's disease. Endocardial and myocardial diseases.

General characteristics of systemic diseases of connective tissue: violation of immune homeostasis and systemic progressive disorganization of connective tissue in rheumatic diseases. Morphology of Bekhterev's disease. Morphogenesis, pathomorphology, complications and causes of death in systemic lupus erythematosus. Pathological anatomy, visceral manifestations, complications, causes of death in systemic scleroderma. Pathological anatomy of dermatomyositis. Complications, causes of death. Cardiomyopathies, Leffler's endocarditis, idiopathic myocarditis, acquired heart defects. Systemic vasculitis. Pathomorphology of systemic vasculitis: nonspecific aortoarteritis, nodular periarteritis, Wegener's granulomatosis, obliterating thromboangiitis. Pathological anatomy of acquired heart defects. Pathological anatomy of acquired (secondary) cardiomyopathies.

Topic. 23. Final lesson (section Diseases of the cardiovascular system. Diseases of the nervous system). Practical experience.

Practicing practical skills.

Content module 5.

Respiratory diseases. Diseases of digestive organs. Diseases of the endocrine system. Diseases of the genitourinary system. Diseases of the musculoskeletal system. Diseases of pregnancy and the postpartum period. Diseases of the pre- and perinatal period. Pathomorphology of hypo- and vitamin deficiency. Diseases caused by human activity and the influence of the external environment

Topic 24. Respiratory diseases.

Morphological characteristics of acute bronchitis. Modern classification of pneumonia. Morphological characteristics and complications of acute focal pneumonia. Morphological characteristics and complications of lobar pneumonia. Morphological characteristics and complications of acute interstitial pneumonia. Morphological characteristics of acute destructive processes of the lungs. Definition and classification of chronic non-specific respiratory diseases. Morphological characteristics and complications of chronic bronchitis. Morphological characteristics of chronic obstructive emphysema. Morphological characteristics and complications of bronchiectasis. Morphological characteristics and complications of bronchial asthma. Morphological characteristics of idiopathic pulmonary fibrosis. Tumors of respiratory organs. Morphological characteristics of lung cancer.

Topic 25. Diseases of the esophagus, stomach and intestines.

Diseases of the esophagus: morphological characteristics. Morphological characteristics of chronic gastritis. Pathomorphology of ulcer disease. Complications of ulcer disease. Pathomorphology of non-specific

ulcerative colitis. Pathomorphology of Crohn's disease. Clinical and morphological forms of appendicitis. Complications of appendicitis. Tumors of the gastrointestinal tract. Stomach cancer. Macroscopic and histological forms. Peculiarities of metastasis. Intestinal tumors. Tumors of the pancreas, morphological characteristics. Liver tumors. Liver cancer, morphological characteristics. Peritonitis, adhesion disease. Definition. Classification, morphological features.

Topic 26. Diseases of the liver, biliary system and pancreas.

Morphological characteristics, prognosis of fatty hepatitis. Definition, morphological characteristics, prognosis of toxic liver dystrophy. Morphogenesis, forms, morphological characteristics of acute hepatitis. Morphological characteristics of chronic hepatitis, degree of activity and chronicity. Morphological characteristics of the most important types of cirrhosis. Pathomorphology of gallstone disease. Pathomorphology of acute and chronic cholecystitis. Morphological characteristics, complications of acute and chronic pancreatitis. Liver tumors.

Topic 27. Kidney diseases.

Modern clinical and morphological classification of kidney diseases. Chronic glomerulonephritis: morphological characteristics, consequences. Classification, morphological manifestations of idiopathic nephrotic syndrome. Morphological manifestations of membranous nephropathy. Morphological characteristics, prognosis of necrotic nephrosis, tubulointerstitial nephritis, acute and chronic pyelonephritis. Morphogenesis and morphological characteristics of nephrolithiasis, consequences Chronic renal failure. Nephrosclerosis.

Topic 28. Hypothalamic-pituitary disorders. Adrenal gland pathology. Pathology of the thyroid gland. Pathology of the endocrine apparatus of the pancreas.

Morphological characteristics, complications and causes of death in Itsenko-Cushing's disease. Morphological characteristics, complications of acromegaly. Morphological characteristics of diabetes insipidus. Morphological characteristics of diabetes. Complications of diabetes mellitus: morphological characteristics of diabetic macro- and microangiopathy. Multinodular goiter. Morphological characteristics, complications, consequences. Graves' disease: morphological features of the thyroid gland, visceral manifestations. Hypothyroidism. Cretinism. Myxedema. Morphological characteristic. Definition, pathomorphology of Hashimoto's thyroiditis. Primary chronic insufficiency of the cortical substance of the adrenal glands (Addison's disease): morphological manifestations. Waterhouse-Friederiksen syndrome: morphological manifestations.

Topic 29. Final lesson. (Diseases of the respiratory organs. Diseases of the digestive organs. Diseases of the endocrine system. Diseases of the urogenital system. Diseases of the musculoskeletal system. Diseases of pregnancy and the postpartum period. Diseases of the pre- and perinatal period. Pathomorphology of hypo- and vitamin deficiency. Human activity and the influence of the external environment). Practical experience.

Practicing practical skills.

Content module 6.

Topic 30. Diseases of the hard tissues of the tooth (caries, non-carious lesions), pulpitis, periodontitis, periostitis, osteomyelitis of the jaw bones.

Pathological anatomy of caries. Clinical and morphological stages of caries. Non-carious damage to the hard tissues of the tooth. Clinical and morphological characteristics of pathological conditions of the pulp and periapical tissues of the tooth. Clinical and morphological characteristics of reactive pulp changes. Clinical and morphological characteristics of acute and chronic pulpitis. Periodontitis. Morphogenesis and morphological manifestations of periodontitis.

Topic 31. Periodontal diseases, inflammatory diseases of the lips, tongue, gums, oral mucosa.

Pathological anatomy of gingivitis. Morphological forms of gingivitis Dental deposits. Pathological anatomy of periodontitis. Periodontitis, morphogenesis and morphological manifestations. Idiopathic progressive periodontal disease. Inflammatory diseases of the jaws. Morphogenetic manifestations. Complications and consequences. Jaw bone cysts. Diseases of the lips, tongue, soft tissues of the oral cavity. Defects in the development of the face, neck and organs of the oral cavity. Morphological features of defects of the face, neck and organs of the oral cavity.

Topic 32. Diseases of the salivary glands: clinical and morphological features of the salivary glands, inflammatory diseases, autoimmune diseases, salivary stone disease, tumors and tumor-like diseases of the salivary glands.

Diseases of the salivary glands. Sialoadenitis. Salivary stone disease. Glandular cysts.

Topic 33. Tumors and tumor-like processes of the organs of the oral cavity and jaw bones: odontogenic and non-odontogenic tumors, papilloma, cancer of the oral cavity, precancerous changes (leukoplakia), non-epithelial tumors, tumors of the jaw bones (osteoblastoclastoma, osteoma, osteosarcoma, fibrous dysplasia, cherubism), jaw cysts (follicular cyst, keratocyst, eruption cyst). Precancerous changes and tumors of the lips, tongue, soft tissues of the oral cavity.

Periodontal disease. Tumor-like diseases of the jaws. Non-odontogenic and odontogenic tumors of the jaw bones. Tumor-like diseases of the salivary glands. Ulcer -like diseases of the lips, tongue, soft tissues of the oral cavity.

Topic 34. Final lesson. Dental pathology (Subsections Diseases of the hard tissues of the tooth. Periodontal diseases, inflammatory diseases of the lips, tongue, gums, mucous membrane of the mouth. Defects in the development of the face, neck and organs of the oral cavity. Diseases of the salivary glands - clinical and morphological features of the salivary glands, inflammatory diseases, autoimmune diseases, salivary stone disease, tumors and tumor-like diseases of the salivary glands, tumors and tumor-like processes of the organs of the oral cavity and jaw bones. Clinical and morphological features of the organs of the maxillofacial system and the oral cavity. Dental manifestations of other diseases). Practical skills.

Practicing practical skills.

Content module 7. Pathomorphology of infectious diseases.

Topic 35. General concepts of human infectious pathology. Classification of infectious diseases. Intestinal infectious diseases. Quarantine infections.

Morphological characteristics, complications, consequences, causes of death in bacterial dysentery. Morphological characteristics, complications, consequences, causes of death in typhoid fever, salmonellosis. Quarantine infections. Cholera: clinical and morphological forms, complications, causes of death. Plague: clinical and morphological forms, complications, causes of death.

Topic 36. Viral airborne infections. Corona virus disease. HIV infection and AIDS. Rabies.

Morphological characteristics, complications, consequences, causes of death in respiratory viral infections, coronavirus disease, HIV infection, rabies. Rickettsioses. Prion infections. Morphological characteristics, complications, consequences, causes of death in typhoid fever. Morphological characteristics, complications of prion lesions of the central nervous system. Morphological characteristics, complications, causes of death in AIDS.

Topic 37. Childhood infections.

Morphological characteristics, complications, consequences, causes of death in scarlet fever. Morphological characteristics, complications, consequences, causes of death in diphtheria. Morphological characteristics, complications, consequences, causes of death in whooping cough.

Topic 38. Tuberculosis. Sepsis. Syphilis.

Tissue reactions in tuberculosis. Pathological anatomy of primary tuberculosis complex. Morphology of progression of primary tuberculosis. Pathological anatomy of the chronic course of primary tuberculosis. Morphological characteristics, complications, consequences, causes of death in hematogenous tuberculosis with predominant lung damage. Morphological characteristics, complications, consequences, causes of death in secondary tuberculosis. Modern pathomorphosis of tuberculosis.

Clinical and anatomical forms of sepsis: septicemia, septicopyemia, septic (infectious) endocarditis. Pathomorphology of congenital syphilis. Pathomorphology of acquired syphilis. Diseases caused by protozoa, helminths. Mycoses. Morphological characteristics, complications, consequences, causes of death in diseases caused by protozoa: malaria, balantidiasis, amebiasis. Morphological characteristics, complications, consequences, causes of death in diseases caused by helminths: trichinellosis, echinococcosis, cysticercosis,

opisthorcosis, schistosomiasis.

Topic 39. Final lesson. (Subsection Pathomorphology of infectious diseases). Practical experience.
Practicing practical skills.

Topic 40. Final Educational Activity (FEA). Preparation for the exam.

4. Structure of the academic discipline:

Names of topics	Number of hours			
	Total	including		Independent work
lectures		practice		
Content module 1.				
Introduction. Morphology of damage and death of cells and tissues.				
Topic 1. Introduction to pathomorphology. The subject and tasks of pathomorphology. Pathological diagnostic methods. The main stages of the development of pathomorphology. Morphological changes of cells as a response to stressful and toxic damage (parenchymatous/cellular dystrophies) Cellular dystrophies: hyaline-droplet, hydropic, fatty.	4	2	2	
Topic 2. Morphological changes of the extracellular matrix (stroma) as a response to damage (stromal-vascular dystrophies). Pathomorphology of extracellular accumulation of complex proteins (hyalinosis), fats and carbohydrates. Exhaustion of the body.	2		2	
Topic 3. Pathomorphology of accumulation of products of disturbed metabolism. Disorders of iron metabolism and metabolism of hemoglobinogenic pigments, pathomorphological manifestations of melanin formation disorders, nucleoprotein and copper metabolism. Calcification (calcification) of tissues. Formation of stones.	2		2	
Topic 4. Necrosis - definition, terms and phases of development, consequences. Clinical and morphological forms of necrosis. Pathological anatomy of multiple organ failure. Fundamentals of Thanatology. Death, mechanisms, signs. Biological, medical, social aspects due to a chronic incurable disease. The concept of thanatogenesis. Structural mechanisms of cessation of activity of vital organs during the natural course of the disease. Complications of stopping the work of the heart, lungs, brain, kidneys, and liver.	4	2	2	
Topic 5. Final lesson. (Subsection Introduction. Morphology of injury and death of cells and tissues). Practical skills.	2		2	
<i>Total according to content module 1</i>	14	4	10	
Content module 2.				
Disorders of blood and lymph circulation. Violation of hemostasis. Inflammation.				
Topic 6. Acute systemic circulatory disorders (acute coronary insufficiency, shock) and systemic circulatory disorders in chronic heart failure and	4	2	2	

their consequences. Regional blood circulation disorders (hyperemia, ischemia, plasmorrhagia, bleeding and hemorrhage). Violation of lymph formation and circulation.				
Topic 7. Violations of hemostasis: hemorrhagic syndrome, thrombosis, DIC-syndrome. Embolism. Thromboembolism of the pulmonary artery, thanatogenesis. Violation of ion-osmotic and water balance.	6		2	4
Topic 8. Inflammation: causes, morphogenesis. Pathomorphology of exudative inflammation	4	2	2	
Topic 9. Proliferative (productive) inflammation: with the formation of acute condylomas, around animal parasites, intermediate productive inflammation, granulomatous inflammation. Specific proliferative inflammation.	2		2	
Topic 10. Final lesson. (Subsection Disorders of blood and lymph circulation. Inflammation). Practical skills.	2		2	
<i>Total according to content module 2</i>	18	4	10	4
Content module 3. Pathology of the immune system. Regeneration. Compensatory and adaptive processes. Tumors				
Topic 11. Molecular and pathomorphological bases of the immune response. The immune system in the prenatal and postnatal period. Pathology of immune processes: amyloidosis, hypersensitivity reactions, transplant rejection. Immune deficiency. Autoimmune diseases.	4	2	2	
Topic 12. Regeneration. Structural basis of physiological adaptation of organs and cells. Morphology of cell accommodation processes. Compensatory and adaptive processes.	4	2	2	
Topic 13. 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. Epithelial tumors: benign organ-nonspecific epithelial tumors, cancer (features of development, metastasis, histological forms).	8	2	2	4
Topic 14. Benign and malignant non-epithelial (mesenchymal) tumors. Sarcoma: features of development and metastasis. Tumors of fibroblastic, myofibroblastic and fibrohistiocytic origin. Tumors from adipose and muscle tissue, tumors from blood vessels.	2		2	
Topic 15. Nomenclature and morphological features of tumors originating from melanin-producing tissue. Nomenclature and morphological features of tumors of the nervous system.	2		2	
Topic 16. Anemia. Thrombocytopathies.	2		2	

Topic 17. Tumors of hematopoietic and lymphoproliferative tissue	4	2	2	
Topic 18. Final lesson. (Subsections Immunopathological processes. Regeneration, processes of adaptation and compensation. Tumors. Diseases of the blood system). Practical skills.	6		2	4
<i>Total according to content module 3</i>	32	8	16	8
Content module 4. Diseases of the cardiovascular system. Diseases of the nervous system.				
Topic 19. Atherosclerosis and arteriosclerosis. Coronary heart disease.	4	2	2	
Topic 20. Hypertension and arteriolosclerosis. Hypertensive disease and symptomatic arterial hypertension.	2		2	
Topic 21. Cerebrovascular disease. Alzheimer's disease. Multiple sclerosis. Amyotrophic lateral sclerosis. Postresuscitation encephalopathy. Diseases of the peripheral nervous system.	6		2	4
Topic 22. Systemic diseases of connective tissue with autoimmunization: rheumatism, systemic lupus erythematosus, rheumatoid arthritis, systemic scleroderma, dermatomyositis, Bekhterev's disease. Endocardial and myocardial diseases. Cardiomyopathies, Leffler's endocarditis, idiopathic myocarditis, acquired heart defects. Systemic vasculitis.	8	2	2	4
Topic. 23. Final lesson (section Diseases of the cardiovascular system. Diseases of the nervous system). Practical skills.	2		2	
<i>Total according to content module 4</i>	22	4	10	8
Content module 5. Respiratory diseases. Diseases of digestive organs. Diseases of the endocrine system. Diseases of the genitourinary system. Diseases of the musculoskeletal system. Diseases of pregnancy and the postpartum period. Diseases of the pre- and perinatal period. Pathomorphology of hypo- and vitamin deficiency. Diseases caused by human activity and the influence of the external environment				
Topic 24. Respiratory diseases.	2		2	
Topic 25. Diseases of the esophagus, stomach and intestines.	4	2	2	
Topic 26. Diseases of the liver, biliary system and pancreas.	2		2	
Topic 27. Kidney diseases.	2		2	
Topic 28. Hypothalamic-pituitary disorders. Adrenal gland pathology. Pathology of the thyroid gland. Pathology of the endocrine apparatus of the pancreas.	2		2	
Topic 29. Final lesson. (Subsections Diseases of the respiratory system. Diseases of the digestive system. Diseases of the endocrine system. Diseases of the genitourinary system. Diseases of the musculoskeletal system. Diseases of pregnancy and the postpartum period. Diseases of the pre- and perinatal period. Pathomorphology of hypo- and	18		2	16

vitamin deficiency. Diseases caused by human activity and the influence of the external environment). Practical skills.				
<i>Total according to content module 5.</i>	30	2	12	16
Content module 6. Dental pathology.				
Topic 30. Diseases of the hard tissues of the tooth (caries, non-cariou lesions), pulpitis, periodontitis, periostitis, osteomyelitis of the jaw bones.	8	2	2	4
Topic 31. Periodontal diseases, inflammatory diseases of the lips, tongue, gums, oral mucosa. Defects in the development of the face, neck and organs of the oral cavity.	6		2	4
Topic 32. Diseases of salivary glands - clinical and morphological features of salivary glands, inflammatory diseases, autoimmune diseases, salivary stone disease, tumors and tumor-like diseases of salivary glands.	2		2	
Topic 33. Tumors and tumor-like processes of the organs of the oral cavity and jaw bones: odontogenic and non-odontogenic tumors, papilloma, cancer of the oral cavity, precancerous changes (leukoplakia), non-epithelial tumors, tumors of the jaw bones (osteoblastoclastoma, osteoma, osteosarcoma, fibrous dysplasia, cherubism) , jaw cysts (follicular cyst, keratocyst, eruption cyst).	8	2	2	4
Topic 34. Final lesson. (Subsections Diseases of the hard tissues of the tooth. Periodontal diseases, inflammatory diseases of the lips, tongue, gums, oral mucosa. Defects in the development of the face, neck and organs of the oral cavity. Diseases of the salivary glands - clinical and morphological features of the salivary glands, inflammatory diseases, autoimmune diseases, salivary stones disease, tumors and tumor-like diseases of the salivary glands Tumors and tumor-like processes of the organs of the oral cavity and jaw bones. Practical skills.	6		2	4
<i>Total according to content module 6.</i>	30	4	10	16
Content module 7. Pathomorphology of infectious diseases.				
Topic 35. General concepts of human infectious pathology. Classification of infectious diseases. Intestinal infectious diseases. Quarantine infections.	8	2	2	4
Topic 36. Viral airborne infections. Corona virus disease. Rickettsioses. Prion infections. HIV infection and AIDS. Rabies.	2		2	
Topic 37. Childhood infections.	6		2	4
Topic 38. Tuberculosis. Sepsis. Syphilis.	4	2	2	
Topic 39. Final lesson. (Subsection Pathomorphology of infectious diseases). Practical skills.	2		2	
Topic 40. FEA. Preparation for education.	12		2	10

Total according to content module 6.	34	4	12	18
TOTAL hours	180	30	80	70

5. Topics of lectures / seminars / practical / laboratory classes

5.1. Topics of lectures

No	TOPIC	Hours
1.	Introduction to pathomorphology. The subject and tasks of pathomorphology. The main stages of the development of pathological anatomy. Pathological diagnostic methods. Cellular dystrophies: branchial-droplet, hydropic, corneal, fatty. Pathomorphology of accumulation of complex proteins (hyalinosis) and lipids. Pathomorphology of accumulation of products of disturbed metabolism. Disorders of iron metabolism and metabolism of hemoglobinogenic pigments. Pathomorphological manifestations of disturbance of melanin production, exchange of nucleoproteins and copper. Calcification (calcification) of tissues. Formation of stones.	2.0
2.	Necrosis - definition, terms and phases of development, consequences. Clinical and morphological forms of necrosis. Pathological anatomy of multiple organ failure. The basics of thanatology. Death, mechanisms, signs. Biological, medical, social aspects due to a chronic incurable disease. The concept of thanatogenesis. Structural mechanisms of cessation of activity of vital organs during the natural course of the disease. The immediate consequences of stopping the work of the heart, lungs, brain, kidneys, liver.	2.0
3.	Acute systemic circulatory disorders (acute coronary insufficiency, shock) and systemic circulatory disorders in chronic heart failure and their consequences. Regional blood circulation disorders (hyperemia, ischemia, plasmorrhagia, bleeding and hemorrhage). Violation of lymph formation and circulation. Thrombosis. Embolism.	2.0
4.	Inflammation: causes, morphogenesis. Pathomorphology of exudative inflammation. Proliferative (productive) inflammation: with the formation of acute condylomas, around animal parasites, interstitial productive inflammation, granulomatous inflammation. Specific proliferative inflammation.	2.0
5.	Molecular and pathomorphological bases of the immune response. The immune system in the prenatal and postnatal period. Pathology of immune processes: amyloidosis, hypersensitivity reactions, transplant rejection. Immune deficiency. Autoimmune diseases.	2.0
6.	Regeneration. Structural basis of physiological adaptation of organs and cells. Morphology of cell accommodation processes. Compensatory and adaptive processes.	2.0
7.	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. Benign and malignant non-epithelial (mesenchymal) tumors. Sarcoma: features of development and metastasis. Tumors of fibroblastic, myofibroblastic and fibrohistiocytic origin. Tumors from adipose and muscle tissue, tumors from blood vessels. Clinical and morphological nomenclature of tumors. Epithelial tumors: benign epithelial tumors, cancer (features of development and metastasis, main histological forms) . Melanocytic tumors.	2.0
8.	Tumors of hematopoietic and lymphoproliferative tissue.	2.0

9.	Atherosclerosis and arteriosclerosis. Coronary heart disease. Hypertension and arteriolosclerosis. Hypertensive disease and symptomatic arterial hypertension.	2.0
10.	Systemic connective tissue diseases with autoimmunization: rheumatism, systemic lupus erythematosus, rheumatoid arthritis, systemic scleroderma, dermatomyositis, Bekhterev's disease. Diseases of the endocardium and myocardium: cardiomyopathies, endocarditis, myocarditis, acquired heart defects	2.0
11.	Diseases of the organs of the digestive system (gastritis, peptic ulcer disease, stomach cancer, hepatitis, hepatosis, liver cirrhosis).	2.0
12.	Diseases of the hard tissues of the tooth (caries, non-carious lesions), pulpitis, periodontitis, periostitis, osteomyelitis of the jaw bones.	2.0
thirteen.	Tumors and tumor-like processes of the organs of the oral cavity and jaw bones: odontogenic and non-odontogenic tumors, papilloma, cancer of the oral cavity, precancerous changes (leukoplakia), non-epithelial tumors, tumors of the jaw bones (osteoblastoclastoma, osteoma, osteosarcoma, fibrous dysplasia, cherubism), jaw cysts (follicular cyst, keratocyst, eruption cyst).	2.0
14.	General concepts of human infectious pathology. Classification of infectious diseases. Intestinal infectious diseases.	2.0
15.	Tuberculosis.	2.0
	TOTAL	30

5.2. Topics of seminar classes

Seminar classes are not provided.

5.3. Topics of practical classes

No	Topic	Number of hours
1.	Topic 1. Practical lesson 1. Introduction to pathomorphology. The subject and tasks of pathomorphology. Pathological diagnostic methods. The main stages of the development of pathomorphology. Morphological changes of cells as a response to stressful and toxic damage (parenchymatous/cellular dystrophies) Cellular dystrophies: hyaline-droplet , hydropic, fatty.	2.0
2.	Topic 2. Practical lesson 2. Morphological changes of the extracellular matrix (stroma) as a response to damage (stromal-vascular dystrophies). Pathomorphology of accumulation of complex proteins (hyalinosis), fats and carbohydrates. Exhaustion of the body.	2.0
3.	Topic 3. Practical lesson 3. Pathomorphology of accumulation of products of disturbed metabolism. Disorders of iron metabolism and metabolism of hemoglobinogenic pigments, pathomorphological manifestations of melanin formation disorders, nucleoprotein and copper metabolism. Calcification (calcification) of tissues. Formation of stones.	2.0
4.	Topic 4. Practical lesson 4. Necrosis - definition, terms and phases of development, consequences. Clinical and morphological forms of necrosis. Pathological anatomy of multiple organ failure. Fundamentals of Thanatology. Death, mechanisms, signs. Biological, medical, social aspects due to a chronic incurable disease. The concept of thanatogenesis. Structural mechanisms of cessation of activity of vital organs during the natural course of the disease. Complications of stopping the work of the heart, lungs, brain, kidneys, and liver.	2.0
5.	Topic 5. Practical lesson 5.	2.0

	Final lesson. (Subsection Disorders of blood and lymph circulation. Inflammation). Practical skills.	
6.	Topic 6. Practical lesson 6. Acute systemic circulatory disorders (acute coronary insufficiency, shock) and systemic circulatory disorders in chronic heart failure and their consequences. Regional blood circulation disorders (hyperemia, ischemia, plasmorrhagia, bleeding and hemorrhage). Violation of lymph formation and circulation.	2.0 _
7.	Topic 7. Practical lesson 7. Violations of hemostasis: hemorrhagic syndrome, thrombosis, DIC-syndrome. Embolism. Thromboembolism of the pulmonary artery, thanatogenesis.	2.0
8.	Topic 8. Practical lesson 8. Inflammation: causes, morphogenesis. Pathomorphology of exudative inflammation	2.0
9.	Topic 9. Practical lesson 9. Proliferative (productive) inflammation: with the formation of acute condylomas, around parasitic animals, intermediate productive inflammation, granulomatous inflammation. Specific proliferative inflammation.	2.0
10.	Topic 10. Practical lesson 10. Final lesson. (Subsection Disorders of blood and lymph circulation. Inflammation). Practical skills.	2.0
11.	Topic 11. Practical lesson 11. Molecular and pathomorphological bases of the immune response. The immune system in the prenatal and postnatal period. Pathology of immune processes: amyloidosis, hypersensitivity reactions, transplant rejection. Immune deficiency. Autoimmune diseases.	2.0
12.	Topic 12. Practical lesson 12. Regeneration. Structural basis of physiological adaptation of organs and cells. Morphology of cell accommodation processes. Compensatory and adaptive processes.	2.0 _
13.	Topic 13. Practical lesson 13. 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. Epithelial tumors: benign organ-nonspecific epithelial tumors, cancer (features of development, metastasis, histological forms).	2.0
14.	Topic 14. Practical lesson 14. Benign and malignant non-epithelial (mesenchymal) tumors. Sarcoma: features of development and metastasis. Tumors of fibroblastic, myofibroblastic and fibrohistiocytic origin. Tumors from adipose and muscle tissue, tumors from blood vessels.	2.0 _
15.	Topic 15. Practical lesson 15. Nomenclature and morphological features of tumors originating from melanin-producing tissue. Nomenclature and morphological features of tumors of the nervous system.	2.0
16.	Topic 16. Practical lesson 16. Anemia. Thrombocytopathies.	2.0
17.	Topic 17. Practical lesson 17. Tumors of hematopoietic and lymphoproliferative tissue	2.0
18.	Topic 18. Practical lesson 18. Final lesson. (Subsections Immunopathological processes. Regeneration, processes of adaptation and compensation. Tumors). Practical experience.	2.0
19.	Topic 19. Practical lesson 19.	2.0

	Atherosclerosis and arteriosclerosis. Coronary heart disease.	
20.	Topic 20. Practical lesson 20. Hypertension and arteriolosclerosis. Hypertensive disease and symptomatic arterial hypertension.	2.0
21.	Topic 21. Practical lesson 21. Cerebrovascular disease. Alzheimer's disease. Multiple sclerosis. Amyotrophic lateral sclerosis. Postresuscitation encephalopathy. Diseases of the peripheral nervous system.	2.0
22.	Topic 22. Practical lesson 22. Systemic connective tissue diseases with autoimmunization: rheumatism, systemic lupus erythematosus, rheumatoid arthritis, systemic scleroderma, dermatomyositis, Bekhterev's disease. Diseases of the endocardium and myocardium: cardiomyopathy, endocarditis, myocarditis, acquired heart defects.	2.0
23.	Topic 23. Practical lesson 23. Final lesson (section Diseases of the blood system and cardiovascular system). Practical skills.	2.0
24.	Topic 24. Practical lesson 24. Respiratory diseases.	2.0
25.	Topic 25. Practical lesson 25. Diseases of esophagus, stomach and intestines.	2.0
26.	Topic 26. Practical lesson 26. Diseases of the liver, biliary system and pancreas.	
27.	Topic 27. Practical lesson 27. Kidney diseases.	2.0
28.	Topic 28. Practical lesson 28. Hypothalamic-pituitary disorders. Adrenal gland pathology. Pathology of the thyroid gland. Pathology of the endocrine apparatus of the pancreas.	2.0
29.	Topic 29. Practical lesson 29. Final lesson. (Subsections Diseases of the respiratory system. Diseases of the digestive system. Diseases of the genitourinary system. Diseases of the endocrine system. Diseases of the musculoskeletal system. Diseases of pregnancy and the postpartum period. Diseases of the pre- and perinatal period. Pathomorphology of hypo- and vitamin deficiency. Diseases caused by human activity and the influence of the external environment) . Practical skills.	2.0
30.	Topic 30. Practical lesson 30. Diseases of the hard tissues of the tooth (caries, non-carious lesions), pulpitis, periodontitis, periostitis, osteomyelitis of the jaw bones.	2.0
31.	Topic 31. Practical lesson 31. Periodontal diseases, inflammatory diseases of the lips, tongue, gums, oral mucosa. Defects in the development of the face, neck and organs of the oral cavity.	2.0
32.	Topic 32. Practical lesson 32. Diseases of the salivary glands - clinical and morphological features of the salivary glands, inflammatory diseases, autoimmune diseases, salivary stone disease, tumors and tumor-like diseases of the salivary glands.	2.0
33.	Topic 33. Practical lesson 33. Tumors and tumor-like processes of the organs of the oral cavity and jaw bones: odontogenic and non-odontogenic tumors, papilloma, cancer of the oral cavity, precancerous changes (leukoplakia), non-epithelial tumors, tumors of the jaw bones (osteoblastoclastoma, osteoma, osteosarcoma, fibrous dysplasia, cherubism), jaw cysts (follicular cyst, keratocyst, eruption cyst).	2.0
34.	Topic 34. Practical lesson 34. Final lesson. (Subsections Diseases of the hard tissues of the tooth. Periodontal	

	diseases, inflammatory diseases of the lips, tongue, gums, oral mucosa. Defects in the development of the face, neck and organs of the oral cavity. Diseases of the salivary glands - clinical and morphological features of the salivary glands, inflammatory diseases, autoimmune diseases, salivary stones disease, tumors and tumor-like diseases of the salivary glands Tumors and tumor-like processes of the organs of the oral cavity and jaw bones).Practical skills.	
35.	Topic 35. Practical lesson 35. General concepts of human infectious pathology. Classification of infectious diseases. Intestinal infectious diseases.	2.0
36.	Topic 36. Practical lesson 36. Viral airborne infections. Corona virus disease. HIV infection and AIDS. Rabies.	2.0
37.	Topic 37. Practical lesson 37. Childhood infections.	2.0
38.	Topic 38. Practical lesson 38. Tuberculosis. Sepsis. Syphilis.	2.0
39.	Topic 39. Practical lesson 39. Final lesson. (Subsection Pathomorphology of infectious diseases). Practical skills.	2.0
40.	Topic 40. Practical lesson 40. FEA (final educational activity). Preparation for the exam.	2.0
	TOTAL	80

5.4 Independent work

No	TOPIC	Number of hours
1.	Topic 1. Violation of ion-osmotic and water balance, acid-base state. Preparation for practical class 7.	4
2.	Topic 2. Features of childhood tumors. Embryonic tumors. Germinogenic tumors. Teratomas and teratoblastomas. "Adult-type" tumors. Preparation for practical class 18.	4
3.	Topic. 3. Organ-specific tumors from the epithelium. Preparation for topic 13.	4
4.	Topic. 4. Cerebrovascular diseases. Postresuscitation encephalopathy and brain death syndrome. Neurodegenerative (neurodystrophic) (Alzheimer's disease) and demyelinating diseases (multiple sclerosis). Neuritis (neuropathy). Preparation for practical class 21.	4
5.	Topic 5. Systemic vasculitis: periarteritis nodosa, Takayasu's arteritis, temporal (giant cell) arteritis, Wegener's granulomatosis, thromboangiitis obliterans, Kawasaki disease, Schönlein-Henoch purpura, Raynaud's disease and syndrome. Sjogren's syndrome. Preparation for practical class 22.	4
6.	Topic 6. Diseases of the musculoskeletal system. Parathyroid osteodystrophy, osteopetrosis, Paget's disease, fibrous dysplasia, osteomyelitis, joint diseases, muscular dystrophies, myasthenia. Bone-forming and cartilage-forming tumors. Preparation for practical class 29.	4
7.	Topic 7. Pathology of changes in diseases related to nutrition. Radiation sickness, hospital sickness. Occupational diseases. Preparation for practical class 29.	4
8.	Topic. 8. Diseases of the female and male reproductive system. Pathology of	4

	pregnancy, postpartum period and placenta. Breast disease. Preparation for practical class 29.	
9.	Topic. 9. Pre- and perinatal pathology Preparation for practical class 29.	4
10.	Topic 10. Clinical and morphological features of the organs of the maxillofacial system and the oral cavity. Preparation for practical class 30.	4
11.	Topic 11. Dental manifestations of other diseases. Preparation for practical class 31.	4
12.	Topic 12. Precancerous changes and tumors of the lips, tongue, soft tissues of the oral cavity. Preparation for practical class 33.	4
thir tee n.	Topic 13. Defects in the development of the face, neck and organs of the oral cavity. Preparation for practical class 34.	4
14.	Topic 14. Diseases caused by protozoa and helminths. Preparation for practical class 35.	4
15.	Topic 15. Childhood infections. Preparation for practical lesson 37.	4
16.	Topic. 16. Preparation for the exam. Preparation for practical class 40.	10
	<i>TOTAL IWS on discipline</i>	70

6. Individual tasks

Not provided.

7. Teaching methods

Practical classes: conversation, solving clinical situational problems, practicing the skills of microscopic and macroscopic diagnosis of pathological processes in organs and tissues, carrying out differential diagnosis using the main methods of pathomorphological findings, improving the skills of interpreting cell pathology and justifying the clinical and morphological characteristics of general pathological processes that cause manifestations of diseases, improvement of skills to determine the consequences of various pathological conditions.

Independent work: independent work with the recommended basic and additional literature, with electronic information resources, independent work with the bank of test tasks Step-1, independent work with the album, preparation for the exam. Students are recommended to keep albums in which they describe macroscopic and microscopic changes of organs, tissues and cells during certain pathological processes and sketch individual micropreparations, answer and record answers to tests from the KROC license exam database at each lesson.

8 . Forms of control and evaluation methods (including criteria for evaluating learning outcomes)

Current control: oral survey, testing, assessment of performance of practical skills, solution of situational pathomorphological tasks, assessment of activity in class. Means of diagnosing the level of students' training: solving test tasks from the database of the KROC license exam; procedurally structured control of practical skills and abilities (assessment of knowledge and ability to analyze and interpret macro- and microscopic changes in cells, tissues, organs and systems during certain pathological processes); interview.

Final control : testing according to the KROC-1 type, oral exam.

About the evaluation of the current educational activity in a practical session

When assessing the mastery of each topic, the student is given grades on a 4-point (traditional) scale ("2", "3", "4", "5").

1. Evaluation of theoretical knowledge on the subject of the lesson:

- methods: survey, solving a situational clinical problem, tests
- the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.

2. Assessment of practical skills on the topic of the lesson:

- methods: assessment of the correctness of the performance of practical skills
- the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.

The grade for one practical session is the arithmetic average of all components and can only have a whole value (5, 4, 3, 2), which is rounded according to the statistical method.

Rating	Evaluation criteria
"5"	The student is fluent in the material, takes an active part in discussing and solving situational clinical problems, tests, confidently demonstrates practical skills during micro- and macroscopic diagnosis of pathological processes in organs and tissues according to the algorithm, expresses his opinion on the subject of the lesson, demonstrates clinical thinking.
"4"	The applicant has a good command of the material, participates in the discussion and solution of the situational clinical problem, tests, demonstrates practical skills during micro- and macroscopic diagnosis of pathological processes in organs and tissues according to the algorithm, with some errors, expresses his opinion on the topic of the lesson, demonstrates clinical thinking.
"3"	The applicant does not have sufficient knowledge of the material, is unsure of participating in the discussion and solution of the situational clinical problem, tests, demonstrates practical skills of micro- and macroscopic diagnosis of pathological processes in organs and tissues with significant errors.
"2"	The applicant does not possess the material, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills of micro- and macroscopic diagnosis of pathological processes in organs and tissues.

The applicant is admitted to the exam provided that he meets the requirements of the educational program and if he received at least 3.00 points for the current educational activity and passed the test control of the "Step-1" tests with at least 90% (45 questions).

The test control is held in the Educational and Production Complex of Innovative Technologies of Learning, Informatization and Continuous Education of ONMedU in the last class before the exam.

Assessment of students' independent work. Students' independent work, which is provided for by the topic of the lesson along with classroom work, is evaluated during the current control of the topic in the corresponding lesson. The mastery of topics that are assigned only to independent work is checked during the final control.

Evaluation of learning results during the final control

The content of the evaluated activity	Scores
The answer to a theoretical question.	1
The answer to a theoretical question.	1
The answer to a theoretical question.	1
Practical task: diagnosis of pathology in a micropreparation	1
Practical task: description and diagnosis of pathology in macromedicine	1

Criteria for evaluating the learning outcomes of education seekers on the exam

Rating	Evaluation criteria
Perfectly	The student correctly, accurately and completely completed all the tasks of the examination ticket, clearly and logically answered the questions posed by the

	<p>examiners. G knows the content of theoretical issues thoroughly and comprehensively, is fluent in professional and scientific terminology. Thinks logically and constructs an answer, freely uses acquired theoretical knowledge when analyzing practical tasks.</p> <p>Successfully performs practical tasks on the description of macro- and micropreparations, correctly demonstrates the implementation of practical skills, strictly followed the algorithm of their implementation. He showed creative abilities in understanding and using educational and program material, showed the ability to independently update and replenish knowledge. The level of competence is high (creative).</p>
Fine	<p>The student completed all the tasks of the examination ticket in a sufficiently complete manner, clearly and logically answered the questions posed by the examiners. He knows the content of theoretical issues deeply and comprehensively, and has professional and scientific terminology. Thinks logically and constructs an answer, uses acquired theoretical knowledge when analyzing practical tasks. But when teaching some questions, there is not enough depth and argumentation, it makes insignificant mistakes, which are eliminated by the applicant himself when the examiner points them out. When performing practical tasks on the description of macro- and micropreparations, he made insignificant errors or inaccuracies, made minor errors in the algorithm and technique of performing skills, which were corrected at the instruction of the teacher. He answered all the questions without significant mistakes, fully justified his point of view, but the proposal of an alternative option caused difficulties. The level of competence is average (reproductive);</p>
Satisfactorily	<p>The student of education incompletely completed all the tasks of the examination ticket, the answers to additional and leading questions are vague and vague. Possesses a basic amount of theoretical knowledge, uses professional and scientific terminology inaccurately. Experiences significant difficulties in constructing an independent logical answer, in applying theoretical knowledge in the analysis of practical tasks. There are significant errors in the answers. At performing practical tasks on the description of macro- and micropreparations, significant errors were made in the algorithm and skill performance technique. The level of competence is average (reproductive);</p>
Unsatisfactorily	<p>The student of education did not complete the task of the examination ticket, in most cases did not answer the additional and leading questions of the examiners. He did not master the basic amount of theoretical knowledge, he showed a low level of mastery of professional and scientific terminology. Answers to questions are fragmentary, inconsistent, illogical, cannot apply theoretical knowledge when analyzing practical tasks. There are a significant number of gross errors in the answers. He did not offer alternative options. When performing practical tasks on the description of macro- and micropreparations, he did not demonstrate or made gross errors and mistakes in the algorithm and technique of performing skills. The level of competence is low (receptive-productive).</p>

9. Distribution of points received by students of higher education

The grade for the discipline consists of 50% of the grade for the current academic performance and 50% of the grade for the exam.

The average score for the discipline is translated into a national score and converted into points on a multi-point scale (200-point scale).

The conversion of a traditional grade into a 200-point grade is performed by the information and technical department of the University using the "Contingent" program according to the formula:

Average mark success (current success rate with disciplines) X 40

Table of conversion of traditional assessment to multi-point assessment

National assessment for discipline	The sum of points for the discipline
Excellent ("5")	185 - 200
Good ("4")	151 - 184
Satisfactory ("3")	120-150
Unsatisfactory ("2")	Below 120

By *rating scale ESTS* the achievements of students in the educational component who are studying in the same course of the same specialty are evaluated, according to the points they received, by means of ranking, namely:

Conversion of the traditional grade from the discipline and the sum of points on the ECTS scale

Evaluation on the ECTS scale	Statistical indicator
A	Top 10% achievers
B	The next 25% of earners
C	The next 30% of earners
D	The next 25% of earners
E	The next 10% of earners

10. Methodological support

- Working program of the academic discipline
- Thematic plans of lectures, practical classes, IWS;
- Syllabus of the academic discipline
- Textbooks:
 1. Essentials of pathology: textbook / Ya. Bondar, A.Romanyuk, V.Voloshyn, V. Gargin – Kharkiv, “Planeta-Print” Ltd, 2020, 219p.
 2. Pathology: textbook / S.V. Sorokina,V.D. Markovskiyi, D.I. Halata et al.; edited by S.V. Sorokina,V.D. Markovskiyi, D.I. Halata.- 2-nd edition.- Kyiv : AUS Medicine Publishing, 2020. – 328p.+2 colour inserts (8p. + 12p.)
 3. Pathology: textbook / S.V. Sorokina,V.D. Markovskiyi, D.I. Halata et al.; edited by S.V. Sorokina,V.D. Markovskiyi, D.I. Halata. – Kyiv : AUS Medicine Publishing, 2019. – 328p.+2 colour inserts (8p. + 12p.)
- Multimedia presentations
- Video presentations of lectures.
- Situational pathomorphological tasks
- Methodical development of practical classes, SRS and lectures
- An electronic bank of test tasks by discipline subdivisions (pathomorphology test database for preparation for the KROC-1 licensing exam, theoretical questions);
- Study tables (1200), stands;
- A museum with a collection of micro- and macropreparations (1000 and 500 pieces, respectively).
- Student microscopes.
- Professional microscopes with video cameras.
- Digital microscope.
- Laptop.
- Multimedia projector.

11. Questions for preparing for the final inspection

1. Pathological anatomy as a science, a branch of practical medicine and a subject of study. Content, tasks, objects and methods of pathomorphological research. Levels of research on the structural basis of diseases.
2. The main stages of the development of pathomorphology. Contribution of domestic scientists to the development of world pathomorphology.
3. The concept of ultrastructural cell pathology.
4. Morphogenesis and morphology of intracellular and extracellular accumulation of proteins, carbohydrates and lipids.
5. Morphogenesis and morphology of pathological accumulation of endogenous and exogenous pigments.
6. Morphogenesis and morphology of mineral metabolism disorders.
7. Damage and death of cells and tissues. Necrosis and apoptosis are morphological manifestations.
8. Structural mechanisms and clinico-pathological characteristics of the main periods of thanatogenesis. Death: definition, signs and term of development. Post-resuscitation period: definition, patho-anatomical features of damage to vital organs and restoration of their functions.
9. Morphology of ion-osmotic and water balance disorders.
10. Morphology and consequences of disorders in various types of hyperemia.
11. Morphogenesis and pathomorphology of ischemia. Morphogenesis and pathomorphology of infarction.
12. Definition and morphogenesis of types of bleeding, hemorrhage.
13. Morphogenesis, pathomorphology, consequences of stasis.
14. Pathomorphology, consequences of plasmorrhagia.
15. Pathomorphology, types, consequences of embolism.
16. Morphogenesis, pathomorphology, consequences of shock.
17. Pathomorphology, consequences of lymphatic circulation disorders.
18. Morphogenesis, pathomorphology, consequences of thrombosis, DIC-syndrome.
19. Definition of exudative inflammation. Types, morphological characteristics, clinical significance of exudative inflammation.
20. Definition of proliferative inflammation. Morphological features, consequences of proliferative inflammation. Types, morphological characteristics of granulomatous inflammation. Types, morphological characteristics of specific inflammation.
21. Morphological characteristics of different types of hypersensitivity.
22. Definition, classification and general morphological characteristics of autoimmune diseases.
23. Definition, general morphological characteristics of primary and secondary immune deficiency.
24. Principles of classification of amyloidosis. Systemic amyloidosis (primary, secondary): morphological characteristics. Localized and endocrine amyloidosis: morphological characteristics. Aging amyloid: morphological characteristics.
25. Definition, types, morphological characteristics of hyperplasia.
26. Definition, types, morphological characteristics of atrophy.
27. Definition, types, morphological characteristics of metaplasia.
28. Phase nature of compensation processes in pathological conditions. Sclerosis.
29. Definition, types, morphological characteristics of hypertrophy. Morpho-functional features of myocardial hypertrophy.
30. Pathanatomy of organism disadaptation.
31. Cellular and intracellular forms of regeneration. Types of regeneration: physiological, reparative, pathological. Morphogenesis of the regenerative process.
32. Granulation tissue: morphological characteristics. Types of wound healing.
33. Determination of tumor growth. Modern theories of carcinogenesis.
34. Definition of dysplasia, its types, the role of dysplasia in carcinogenesis. Precancerous (precancerous) conditions and changes, morphology.
35. Tumor cell features. Morphogenesis and histogenesis of tumors. Types of tumor growth.
36. Morphological features of benign tumors. Morphological features of malignant tumors.
37. Metastasis: types, regularities, mechanisms. Systemic non-metastatic effects.

38. General characteristics and nomenclature of tumors from tissues originating from mesenchyme. Morphological features of benign tumors from tissues originating from mesenchyme. Morphological features of malignant tumors from tissues originating from mesenchyme. Ways of metastasis of sarcoma.
39. Nomenclature of nervous tissue tumors. Morphological features of tumors of the central nervous system. Peculiarities of metastasis of tumors of the central nervous system. Nomenclature and morphological features of tumors of the autonomic nervous system. Nomenclature and morphological features of tumors of the peripheral nervous system.
40. Nomenclature of tumors originating from melanin-producing tissue. Nevi, their varieties. Morphological features of melanoma, its morphological forms. Significance of precancerous changes.
41. Nomenclature of epithelial tumors. Morphological features of epithelial tumors without specific localization: benign (papilloma, adenoma) and malignant (cancer). Histological variants of cancer. Features of cancer metastasis.
42. Features of tumor growth in children compared to adults. Dysontogenetic tumors: hamartomas and hamartoblastomas - morphological manifestations. Teratomas and teratoblastomas - morphological manifestations. Tumors from cambial embryonic tissues - morphological manifestations.
43. Tumors of childhood, which develop according to the type of tumors of adults - morphological manifestations.
44. Definition, classification and morphological characteristics of anemias.
45. Definition, classification, morphological characteristics of thrombocytopenia and thrombocytopathies. Classification, morphological characteristics of coagulopathies.
46. Definition, classification, general morphological characteristics of leukemias. Types, stages of the course, morphological characteristics of acute leukemia. Types, stages of the course, morphological characteristics of chronic leukemia.
47. Pathohistological types, morphological characteristics of Hodgkin's disease, causes of death. General characteristics, classification, morphological manifestations and prognosis of non-Hodgkin's lymphomas.
48. Morphogenesis of macroscopic changes in atherosclerosis. Morphogenesis of microscopic changes in atherosclerosis.
49. Clinical and morphological forms of atherosclerosis, organ lesions in atherosclerosis.
50. Morphology of acute, recurrent and repeated myocardial infarction. Consequences, complications, causes of death in myocardial infarction.
51. Morphological characteristics, complications, causes of death in chronic ischemic heart disease.
52. Morphological changes in blood vessels, heart, changes in organs in hypertensive disease.
53. General characteristics of systemic diseases of connective tissue: violation of immune homeostasis and systemic progressive disorganization of connective tissue in rheumatic diseases. Classification, morphogenesis, morphological characteristics of rheumatism. Endocarditis, myocarditis, pericarditis and pancarditis: classification, morphological characteristics, complications.
54. General characteristics, classification, background diseases and risk factors of cerebrovascular disease. Infarct (ischemic stroke) of the brain: morphological characteristics. Morphological characteristics, consequences of hemorrhagic stroke.
55. Morphological characteristics of acute bronchitis.
56. Modern classification of pneumonia. Morphological characteristics and complications of acute focal pneumonia.
57. Morphological characteristics and complications of lobar pneumonia.
58. Definition and classification of chronic non-specific respiratory diseases. Morphological characteristics and complications of chronic bronchitis. Morphological characteristics of chronic obstructive emphysema. Morphological characteristics and complications of bronchiectasis.
59. Morphological characteristics and complications of bronchial asthma.
60. Morphological characteristics of lung cancer.
61. Diseases of the esophagus: morphological characteristics. Morphological characteristics of chronic gastritis.
62. Pathomorphology of ulcer disease. Complications of ulcer disease.

63. Stomach cancer. Macroscopic and histological forms. Peculiarities of metastasis.
64. Clinical and morphological forms of appendicitis. Complication of appendicitis.
65. Intestinal tumors.
66. Morphological characteristics, prognosis of fatty hepatosis. Definition, morphological characteristics, prognosis of toxic liver dystrophy.
67. Morphogenesis, forms, morphological characteristics of acute hepatitis. Morphological characteristics of chronic hepatitis, degree of activity and chronicity.
68. Morphological characteristics of the most important types of cirrhosis.
69. Liver cancer, morphological characteristics.
70. Pathomorphology of gallstone disease. Pathomorphology of acute and chronic cholecystitis.
71. Morphological characteristics, complications of acute and chronic pancreatitis.
72. Morphological characteristics, complications and causes of death in Itsenko-Cushing's disease.
73. Morphological characteristics, complications of acromegaly.
74. Morphological characteristics of diabetes insipidus.
75. Morphological characteristics of diabetes. Complications of diabetes mellitus: morphological characteristics of diabetic macro- and microangiopathy.
76. Graves' disease (diffuse toxic goiter, Based's disease): morphological features of the thyroid gland, visceral manifestations.
77. Hypothyroidism. Cretinism. Myxedema. Morphological characteristic. Definition, pathomorphology of Hashimoto's thyroiditis.
78. Morphological features of primary and secondary hyperparathyroidism. Morphological changes of bones in hyperparathyroid dystrophy.
79. Primary chronic insufficiency of the cortical substance of the adrenal glands (Addison's disease): morphological manifestations.
80. Morphological characteristics, consequences of inflammatory diseases, precancerous processes of the cervix.
81. Morphological manifestations of inflammatory diseases of the endometrium and myometrium.
82. Morphological characteristics, complications, consequences of inflammatory diseases of the mammary glands. Morphological characteristics of fibrocystic changes of mammary glands.
83. Morphological characteristics, complications, consequences of benign nodular hyperplasia of the prostate gland. Morphological characteristics of inflammatory diseases of the testicles.
84. Modern clinical and morphological classification of kidney diseases. Postinfectious glomerulonephritis: morphological characteristics, consequences. Rapidly progressive: morphological characteristics, consequences. Chronic glomerulonephritis: morphological characteristics, consequences.
85. Morphological characteristics, prognosis of necrotic nephrosis.
86. Morphological characteristics, prognosis of acute and chronic pyelonephritis.
87. Morphogenesis and morphological characteristics of nephrolithiasis, consequences.
88. Chronic kidney failure. Nephrosclerosis. Pathological anatomy.
89. Morphological characteristics, complications of Paget's disease. Morphological characteristics, complications of fibrous dysplasia.
90. Classification, morphological diagnosis, complications and consequences of ectopic pregnancy.
91. Classification, morphological characteristics and prognosis of trophoblastic disease.
92. Morphological characteristics, consequences of asphyxia.
93. Pathological anatomy, consequences, causes of death from injuries caused by electric current. Pathological anatomy, consequences, causes of death from diseases associated with exposure to ionizing radiation.
94. Pathological anatomy of caries. Clinical and morphological stages of caries.
95. Non-carious damage to the hard tissues of the tooth.
96. Clinical and morphological characteristics of pathological conditions of the pulp and periapical tissues of the tooth.
97. Clinical and morphological characteristics of reactive pulp changes.
98. Clinical and morphological characteristics of acute and chronic pulpitis.
99. Periodontitis. Morphogenesis and morphological manifestations of periodontitis.

100. Pathological anatomy of gingivitis. Morphological forms of gingivitis
101. Dental deposits.
102. Pathological anatomy of periodontitis.
103. Periodontitis, morphogenesis and morphological manifestations.
104. Idiopathic progressive periodontal disease.
105. Inflammatory diseases of the jaws. Morphogenetic manifestations. Complications and consequences.
106. Jaw bone cysts.
107. Diseases of the salivary glands. Sialoadenitis. Salivary stone disease. Glandular cysts.
108. Diseases of the lips, tongue, soft tissues of the oral cavity. Haylit. Glossit Stomatitis.
109. Periodontal disease.
110. Tumor-like diseases of the jaws.
111. Non-odontogenic and odontogenic tumors of the jaw bones.
112. Tumors and tumor-like diseases of the salivary glands.
113. Tumors and tumor-like diseases of the lips, tongue, soft tissues of the oral cavity.
114. General characteristics of the infectious process: entrance gate of infection, primary infectious complex, spread and dissemination, ways of transmission of pathogens of infectious diseases.
115. Morphological characteristics, complications, consequences, causes of death in bacterial dysentery.
116. Morphological characteristics, complications, consequences, causes of death in typhoid fever.
117. Morphological characteristics, complications, consequences, causes of death in salmonellosis.
118. Morphological characteristics, complications, consequences, causes of death in respiratory viral infections.
119. Morphological characteristics, complications, consequences, causes of death in typhoid fever.
120. Morphological characteristics, complications of infectious diseases of the brain (viral, tick-borne encephalitis).
121. Morphological characteristics, complications of prion lesions of the central nervous system.
122. Morphological characteristics, complications, causes of death in AIDS.
123. Morphological characteristics, complications, consequences, causes of death in measles. Morphological characteristics, complications, consequences, causes of death in epidemic parotitis.
124. Morphological characteristics, complications, consequences, causes of death in diphtheria.
125. Morphological characteristics, complications, consequences, causes of death in scarlet fever.
126. Pathological anatomy of primary tuberculosis complex. Morphology of progression of primary tuberculosis.
127. Morphological characteristics, complications, consequences, causes of death in hematogenous tuberculosis with predominant lung damage. Morphological characteristics, complications, consequences, causes of death in hematogenous tuberculosis with predominant damage to internal organs and bone system.
128. Morphological characteristics, complications, consequences, causes of death in secondary tuberculosis.
129. Clinical and anatomical forms of sepsis: septicemia, septicopyemia, septic (infectious) endocarditis.
130. Cholera: clinical and morphological forms, complications, causes of death.
131. Pathomorphology of congenital syphilis. Pathomorphology of acquired syphilis.
132. Morphological characteristics of trichinellosis , echinococcosis , cysticercosis and opisthorcosis .

11.1 List of micropreparations, the diagnosis of which pathological processes are practical skills before passing the exam

1. Hyalinosis of vessels
2. Skin in Addison's disease
3. Hemosiderosis of the lungs
4. Ischemic infarction of the spleen
5. Nutmeg liver

6. Pulmonary edema
7. Fibrinous epicarditis
8. Phlegmon of muscles, adipose tissue
9. Epithelioid cell granuloma
10. Actinomycosis
11. Brown atrophy of the liver
12. Granulation tissue
13. Scirrhus cancer
14. Cavernous hemangioma of the kidney
15. Melanoma
16. Myocardial infarction with organization
17. Atherosclerosis of coronary arteries
18. Systemic lupus erythematosus
19. Croupous pneumonia
20. Emphysema of the lungs
21. Phlegmonous and ulcerative appendicitis
22. Cirrhosis
23. Extracapillary productive glomerulonephritis
24. Influenza encephalitis
25. Miliary tuberculosis of the lungs
26. Deep caries
27. Radical cyst
28. Adenoma of the salivary gland
29. Osteoblastoclastoma
30. Giant cell epulis

11.2 List of macropreparations, the diagnosis of which pathological processes are practical skills before passing the exam

1. Fatty liver dystrophy
2. Melanoma metastases in the liver
3. Kidney stones
4. Gangrene of limbs
5. Splenic infarction
6. Myocardial infarction

7. Brain cyst
8. Fibrinous epicarditis
9. Kidney amyloidosis
10. Hypertrophy of the heart
11. Hydronephrosis
12. Uterine fibromyoma
13. Bladder papilloma
14. Cavernous hemangioma of the liver
15. Spleen with lymphogranulomatosis
16. Atherosclerosis of the aorta
17. Postinfarction cardiosclerosis
18. Hemorrhage in the brain
19. Rheumatic warty endocarditis
20. Primary shrunken kidney
21. Croupous pneumonia (gray liver disease)
22. Chronic stomach ulcer
23. Fibrinous colitis with dysentery
24. Colloidal goiter
25. Prostate hypertrophy
26. Purulent leptomeningitis
27. Noma
28. Diphtheria of the trachea and bronchi
29. Cavernous tuberculosis
30. Syphilitic lobular liver

12. Recommended literature

Basic:

1. Essentials of pathology: textbook / Ya. Bondar, A.Romanyuk, V.Voloshyn, V. Gargin – Kharkiv, “Planeta-Print” Ltd, 2020, 219p.
2. Pathology: textbook / S.V. Sorokina,V.D. Markovskiy, D.I. Halata et al.; edited by S.V. Sorokina,V.D. Markovskiy, D.I. Halata.- 2-nd edition.- Kyiv : AUS Medicine Publishing, 2020. – 328p.+2 colour inserts (8p. + 12p.)
3. Pathology: textbook / S.V. Sorokina,V.D. Markovskiy, D.I. Halata et al.; edited by S.V. Sorokina,V.D. Markovskiy, D.I. Halata. – Kyiv : AUS Medicine Publishing, 2019. – 328p.+2 colour inserts (8p. + 12p.)
4. Atlas of micropreparations in pathomorphology / I.I. Starchenko, B.M. Filenko, N.V. Royko, etc.; VDZU "UMSA". - Poltava, 2018. - 190 p

Additional:

1. Kumar V. Robbins Basic Pathology. 9th Edition / Vinay Kumar, Abul Abbas, Jon Aster. – Elsevier. – 2015. – 952 p.

13. Electronic information resources

1. <http://moz.gov.ua> – [Ministry of Health of Ukraine](#)
2. www.ama-assn.org - [American Medical Association](#) / American Medical Association
3. www.who.int - [World Health Organization](#)
4. www.dec.gov.ua/mtd/home/ - [State Expert Center of the Ministry of Health of Ukraine](#)
5. <http://bma.org.uk> - British Medical Association
6. www.gmc-uk.org - *General Medical Council (GMC)*
7. www.bundesaerztekammer.de – German Medical Association
8. **[http :// library . Med . utah _ edu / WebPath / webpath . html](http://library.Med.utah.edu/WebPath/webpath.html)** - Pathological laboratory
9. **[http :// www . webpathology . com /](http://www.webpathology.com)** - Web Pathology