

Документ подписан простой электронной подписью

Информация о владельце:

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Должность: и.о. декана медико-биологического факультета

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MINISTRY OF SCIENCE AND HIGHER EDUCATION

RUSSIAN FEDERATION

Federal State Autonomous Educational Institution of Higher Education

NORTH-CAUCASUS FEDERAL UNIVERSITY

APPROVED

Assoc. Prof. Kubanov S.I.

PhD in Medical Sciences

Dean

Faculty of Medicine and Biology

COURSE OUTLINE OF THE DISCIPLINE (MODULE)

«Pathological anatomy, clinical pathological anatomy»

Name of the discipline (module)

- Specialty: 31.05.01 General Medicine
- Mode of training: Full-time
- Year of commencement of studies: 2026
- Delivered in Semester 4-5

Developed by:

Associate Professor of the Department of Physiology and Pathology

position

Bicheva G.V.

full name

Stavropol 2026

1. Aim and Objectives of Mastering the Discipline (Module)

- Aim of mastering the discipline: students gain knowledge about the structural foundations of diseases, their etiology and pathogenesis, study the most typical, characteristic changes at the macro and microscopic levels to comprehend the theoretical foundations of medicine, a more in-depth study of the clinic and the use of acquired knowledge in the work of a general practitioner; mastering the skills of clinical and anatomical analysis based on the comparison of morphological and clinical manifestations of diseases at the at all stages of their development.

- Objectives of mastering the discipline:
 - study of morphological changes in molecular, cellular, tissue, organ, systemic and intersystem typical pathological processes;
 - study of the morphology of development and outcomes of specific diseases developing in individual organs and systems;
 - analysis of the nature of the clinical manifestations of the main pathological processes;
 - familiarization with the principles of intravital and postmortem diagnostics of diseases of individual organs and systems.

2. Place of the Discipline (Module) in the Structure of the Training (educational) Program

The discipline «Pathological anatomy, clinical pathological anatomy» belongs to the compulsory part.

3. List of Potential Learning Outcomes for the Discipline (Module), Correlated with the Outcomes of Mastering the Educational Program

Code and definition of the competence	Code and definition of the indicator	Planned learning outcomes for the discipline (module) describing the stages of competency and indicator development
GPC-5. Capable of assessing morphofunctional, physiological states and pathological processes in the human body to solve professional tasks.	ID-1 GPC-5 Assesses morphofunctional and physiological states and processes in the human body at individual, group, and population levels to solve professional tasks.	Formation of clinical thinking
	ID-2 GPC-5 Identifies pathological states and processes in the human body to solve professional tasks	

4. Volume of the Academic Discipline (Module) and Control *

Volume of classes: Total: <u>7</u> ECTS credits, <u>252</u> academic hours.	Full-time type of study, in academic hours
Face-to-face work	136
Lectures / including practical training	34
Laboratory works / including practical training	102
Independent work	80
Forms of control	

Examination	36
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* The discipline (module) provides for the use of e-learning and remote learning technologies (unless otherwise set by the educational standard).

5. Content of the Discipline (Module), Structured by Topics (Sections) with an Indication of the Hours and Types of Classes

#	Section (topic) of the discipline and brief content	Competencies and indicators to be developed	Full-time training				Forms of current control of academic progress
			Contact work of students with the teacher / of them practical skills training, hours			Independent work, hours	
			Lectures	Practical classes	Laboratory work		
	4th semester						
	Section 1. General pathological anatomy						
1.	Pathological anatomy: content, tasks and research methods. Historical stages of development. The content and tasks of the pathological anatomy. Objects, methods, and levels of pathological anatomy research. Brief historical data: J. Morgagni, M. N. Bichat, J. Corvisard, J. Kruvelier, R. N. Bright, A. N. Beil, K. N. Rokitansky. The development of pathanatomy in Russia, the role of Peter the Great The first organizers of the medical service in Russia were N. Bidloo, I. N. Fischer, and P. N. Kondoidi. Contributions by F. N.F. N. Keresturi (1735-1811), E. N.O. N. Mukhino (1766-1850), A. N.I. N. Overa (1804-1864), I. N.V. N. Varvinsky, A. N.I. N. Polunin (1820-1888) – the founder of Russian pathological anatomy as an independent medical specialty and a separate academic discipline, the founder of the clinical anatomical field in pathological anatomy. Contribution of I. N.F. N. Klein (1837-1922) - Dean Moscow University Medical	ID-1 GPC-5 ID-2 GPC-5			2	2	Interview (discussion)

	Faculty; M. N.N. Nikiforov (1858-1915), A. N.I. N. Abrikosov (1875-1955), I. N.V. N. Davydovsky (1887-1968); M. N.A. N. Skvortsov (1876-1963), V. N.D. N. Talalaev (1886-1947), S. N.St. Vail (1898-1979), A. N.I. N. Strukov (1901-1986), N.A. N. Kraevsky (1905-1985). Contribution of academicians of the Academy of Medical Sciences A. N.P. N. Avtsyn, A. N.V. Smolyannikova, D. N.St. Sarkisovo, A. N.M. N. Vikhert, V. N.V. N. Serov (1924-2007); Academician of the Academy of Sciences. Russian Academy of Natural Sciences, Professor N. V. N.St. Paukov. The contribution of scientists of the St. Petersburg Department of Pathological Anatomy: MN Rudnevo (1837-1878), G. N.V. N. Shor (1872-1948), F. N.F. N. Sysoev (1875-1930), V. N.Gl. Garshin (1887 1956), N.N. Anichkov (1885-1964), V. N. J. Zinzerling (1891-1960), M. N.F. N. Glazunovo (1896-1967). The development of pathology in other cities Of Russia. Creation of pathology services in Russia.						
2.	Cell pathology. Pathology of the cell nucleus. Pathology of mitosis. Chromosomal aberrations and chromosomal diseases Pathology of the cytoplasm. Pathology of organoids. Pathology of cell junctions.	ID-1 GPC-5 ID-2 GPC-5	2		4	2	<i>Interview (discussion)</i>
3.	Dystrophy. Parenchymal, stromal vascular, mixed. Dystrophy as an expression of a violation of tissue (cellular) metabolism and a form of damage (alteration). Dystrophy as the first reactive process in ontogenesis. General patterns of development. Causes, pathogenesis, morphogenesis and morphological specificity, classification. Parenchymal	ID-1 GPC-5 ID-2 GPC-5	2		4	6	<i>Interview (discussion)</i>

	dystrophies, concept, types. Parenchymal protein dystrophies (dysproteinosis). Granular dystrophy. Hyaline drip dystrophy. Hydropic (watery) dystrophy. Horny dystrophy. Parenchymal fatty degeneration (lipidosis). Parenchymal carbohydrate dystrophies. Carbohydrate dystrophies associated with impaired glycogen metabolism. Carbohydrate dystrophies associated with impaired glycoprotein metabolism. Stromal vascular dystrophies. Dysproteinosis. Amyloidosis. Stromal vascular fatty dystrophy. Stromal vascular carbohydrate dystrophy. Mixed dystrophies. Disorders of chromoprotein metabolism (endogenous pigmentation). Disorders of nucleoprotein metabolism. Disorders of mineral metabolism (mineral dystrophies). Formation of stones						
4.	Apoptosis and necrosis. The concept, pathogenesis, and morphogenesis of apoptosis. The concept of necrosis, morphogenesis, microscopic signs. Classification. Mechanisms of occurrence. Clinical and morphological forms: coagulation necrosis, colliquation necrosis, gangrene, sequestration, infarction. Death, signs of death, postmortem changes. Types of death.	ID-1 GPC-5 ID-2 GPC-5			6	6	<i>Interview (discussion)</i>
5.	Circulatory and lymphatic disorders. Circulatory disorders: general characteristics, classification. Blood supply disorders. Arterial fullness, characteristics, types. Venous fullness, characteristics, types. Anemia: general, acute, chronic. Types of anemia – angiospastic, obstructive, compression, ischemia as a result of blood redistribution.	ID-1 GPC-5 ID-2 GPC-5			6	6	<i>Interview (discussion)</i>

	The significance and consequences of anemia. Bleeding as a violation of vascular wall permeability. Definition, causes, outcome, meaning bleeding. Plasmorrhagia is the release of plasma from the bloodstream. Definition, pathogenesis, outcome, significance of plasmorrhagia. Disorders of the course and condition (rheology) of blood. Stasis: definition, the mechanism of development, the reason, the meaning. Thrombosis: definition, mechanism of development, morphology of thrombus, pathogenesis of thrombosis. Disseminated intravascular coagulation syndrome. The outcome of thrombosis. The significance of thrombosis. Embolism: definition, mechanism of development. Types of emboli. Fat thromboembolism, air thromboembolism, gas thromboembolism, tissue (cellular) thromboembolism, microbial thromboembolism, embolism by foreign bodies. Meaning. Shock. Types of shock. Morphological picture of shock. Lymphatic circulation disorders. The concept. Morphological manifestations: stagnation of lymph and dilation of lymphatic vessels (lymphodema), consequences and significance. Violations of the content of tissue fluid. Mechanisms of development. Classification: congestive, cardiac, renal, dystrophic, marantotic, inflammatory, allergic, toxic, neurotic, traumatic edema. Outcomes, meaning.						
6.	Inflammation. Definition. Etiology of inflammation. Morphology and pathogenesis of inflammation. Terminology and classification of	ID-1 GPC-5 ID-2 GPC-5	2		4	4	<i>Interview (discussion)</i>

	inflammation. Morphological forms of acute inflammation. Exudative inflammation: serous, fibrinous, purulent, putrefactive, hemorrhagic, catarrhal, mixed – morphological picture, causes, course, outcome, meaning. Proliferative (productive) inflammation. Types, causes, course, meaning. Acute productive inflammation: interstitial (interstitial) inflammation, granulomatous inflammation. Issue. Chronic inflammation. Types: chronic exudative inflammation, chronic productive inflammation, chronic granulomatous inflammation. Etiology, pathogenesis. Immune inflammation.						
7.	Immunopathological processes. Morphology of immunogenesis disorders. Changes in the thymus gland in disorders of immunogenesis. Changes in peripheral lymphoid tissue in disorders of immunogenesis. Hypersensitivity reactions. Mechanisms of development. Morphological characteristics of hypersensitivity reactions. Autoimmunity and autoimmune diseases. Immunodeficiency syndromes. Primary immunodeficiency syndromes: cellular and humoral immunity deficiency syndromes, cellular immunity deficiency syndromes, insufficiency syndromes humoral immunity, monocytic phagocyte and neutrophil system deficiency syndromes. Secondary immunodeficiency syndromes.	ID-1 GPC-5 ID-2 GPC-5	2		6	4	<i>Interview (discussion)</i>
8.	Processes of adaptation and compensation. The concept of adaptation and compensation. Adaptation (adaptation). The main processes of adaptation are atrophy, its types and features,	ID-1 GPC-5 ID-2 GPC-5			4	4	<i>Interview (discussion)</i>

	hypertrophy, regeneration and tissue restructuring. Compensation. Hypertrophy and hyperplasia. Types and characteristics.						
9.	Regeneration. The concept of regeneration, meaning for the body. Species, morphogenesis. Physiological regeneration, reparative regeneration, pathological regeneration. Regeneration of individual tissues and organs. Reparative blood regeneration. Regeneration of blood and lymphatic vessels. Regeneration of connective tissue. Regeneration of adipose tissue. Regeneration bone tissue. Regeneration of cartilage, muscle tissue. Regeneration of epithelium, mesothelium, and specialized epithelium. Regeneration of different parts of the nervous system. Wound healing, the concept and types of wound healing according to I.V. Davydovsky.	ID-1 GPC-5 ID-2 GPC-5	2		4	4	<i>Interview (discussion)</i>
10.	Tissue restructuring. The concept of tissue restructuring. The basis of tissue restructuring: hyperplasia, regeneration and accommodation. Compensation mechanisms. Hypertrophy is the most common morphological manifestation of compensation. Hypertrophy of the heart. Hypertrophy of the stomach or intestinal wall. Hypertrophy of the bladder wall. Sclerosis. The concept and classification of sclerosis.	ID-1 GPC-5 ID-2 GPC-5	2		4	4	<i>Interview (discussion)</i>
11.	Tumors. Definition of a "tumor". The main properties of the tumor. Anaplasia and cataplasia, differences. The structure of the tumor, the features of the tumor cell. Microscopic structure, morphological features. Biochemical and histochemical atypism. Antigenic atypism. Functional	ID-1 GPC-5 ID-2 GPC-5	2		6	4	<i>Interview (discussion)</i>

	properties of a tumor cell. Tumor growth. Types of growth: expansive, appositional, infiltrating (invasive). Benign and malignant tumors. Morphogenesis of tumors. Histogenesis of tumors. The progression of tumors. The body's immune response to the tumor. Etiology of tumors. Viruso genetic theory, physico-chemical theory, dysontogenetic theory, polyethological theory. Classification and morphology of tumors.						
	TOTAL in 4 Semester		16		48	44	
	Section 2. Private pathological anatomy						
12.	Diseases of the blood system. Anemia. Hemoblastosis. Thrombocytopenia and thrombocytopathy. General characteristics of diseases of the system blood. Anemia. Etiology and pathogenesis. Classification. Anemia due to blood loss (posthemorrhagic). Anemia due to a violation Hematopoiesis: iron deficiency, vitamin B12 deficiency, hypo- and aplastic anemia. Anemia due to increased blood damage (hemolytic). Tumors of the blood system (hemoblastosis). Classification of tumors of hematopoietic and lymphatic tissues. Leukemias are systemic malignant diseases of the hematopoietic tissue. Etiology, pathogenesis, classification. Acute leukemia. Chronic leukemia. Lymphomas are regional tumor diseases of the hematopoietic and lymphatic tissues. Etiology and pathogenesis. Lymphosarcoma. Reticulosarcoma. Fungal mycosis. Serasi's disease. Hodgkin's disease. Thrombocytopenia. Classification. Pathological anatomy.	ID-1 GPC-5 ID-2 GPC-5			2		Interview (discussion)

	Thrombocytopathies. Classification. Pathological anatomy.						
13.	Diseases of the cardiovascular system. Endocarditis. Definition. Kinds. Infectious endocarditis. Etiology and pathogenesis. Classification. Pathological anatomy. Pathomorphosis. Fibroplastic parietal endocarditis with eosinophilia. Etiology and pathogenesis. Pathological anatomy. Complications. Myocarditis. Idiopathic myocarditis. Etiology and pathogenesis. Pathological anatomy. Complications. Heart defects: congenital and acquired. Mechanism of formation, pathological anatomy. Mitral valve defect. The vice aortic valves. Cardiosclerosis. Pathological anatomy. Clinical significance. Atherosclerosis. Definition. Etiology. Pathogenesis. Pathological anatomy and morphogenesis. Clinical and morphological forms Atherosclerosis: atherosclerosis of the aorta, coronary arteries of the heart, cerebral arteries, renal arteries, intestinal arteries. Hypertension. Definition, etiology and pathogenesis. The course of hypertension. Clinical and morphological forms. Coronary heart disease. Definition, etiology and pathogenesis. Pathogenetic factors. Classification. Acute myocardial ischemia. Macroscopic and microscopic diagnostics. Myocardial infarction. Classification and pathological anatomy. The course of myocardial infarction. Complications. Cerebrovascular diseases. Etiology and pathogenesis, classification.	ID-1 GPC-5 ID-2 GPC-5	2		4		<i>Interview (discussion)</i>
14.	Respiratory diseases. General characteristics of respiratory diseases. Acute	ID-1 GPC-5 ID-2 GPC-5			2		<i>Interview (discussion)</i>

	bronchitis: etiology and pathogenesis, pathological anatomy, complications, outcome. Acute pneumonia: characteristics, etiology, pathogenesis, features of clinical and morphological manifestations. Croup pneumonia: characteristics, etiology, pathogenesis, morphogenesis, features of clinical and morphological manifestations, stages of development. Complications. Bronchopneumonia: characteristics, etiology, pathogenesis, morphogenesis, features of clinical and morphological manifestations. Complications. Interstitial pneumonia: characteristics, etiology, pathogenesis, morphogenesis, clinical and morphological features manifestations. Complications. Acute destructive processes in the lungs. Lung abscess. Gangrene of the lung. Chronic nonspecific lung diseases. Chronic bronchitis. Bronchiectasis. Emphysema of the lungs. Bronchial asthma. Characteristics, etiology, pathogenesis, morphogenesis, features of clinical and morphological manifestations. Complications. Chronic abscess, chronic pneumonia. Interstitial lung diseases: classification, etiology, pathogenesis, pathology. Pneumofibrosis. Pneumoconiosis. Lung cancer: characteristics, etiology, pathogenesis, morphogenesis, features clinical and morphological manifestations. Complications. Histological types of lung cancer. Pleurisy.						
15.	Diseases of the gastrointestinal tract. General characteristics of diseases of the gastrointestinal tract. Diseases of the pharynx and pharynx: etiology and	ID-1 GPC-5 ID-2 GPC-5	2		4		<i>Interview (discussion)</i>

	pathogenesis, pathology, complications. Diseases of the salivary glands: characteristics, etiology and pathogenesis, pathology, complications. Diseases of the esophagus. Diverticulum of the esophagus, esophagitis. Cancer of the esophagus. characteristics, etiology and pathogenesis, pathology, complications. Stomach diseases. Gastritis, types of gastritis. Characteristics, etiology and pathogenesis, pathology, complications. Peptic ulcer disease. Characteristics, etiology and pathogenesis, pathology, complications. Stomach cancer. Characteristics, etiology and pathogenesis, pathanatomy, morpho- and histogenesis, complications. Intestinal diseases. Malformations, enteritis. Characteristics, etiology and pathogenesis, pathology, complications. Enteropathy. Whipple's disease. Characteristics, etiology and pathogenesis, pathanatomy, morpho- and histogenesis, complications. Colitis. Forms of colitis. Characteristics, etiology and pathogenesis, pathanatomy, morpho- and histogenesis, complications. Crohn's disease. Characteristics, etiology and pathogenesis, pathanatomy, morpho- and histogenesis, complications. Appendicitis. Forms of appendicitis. Characteristics, etiology and pathogenesis, pathanatomy, morpho- and histogenesis, complications. Intestinal tumors. Peritonitis.						
16.	Diseases of the liver, gallbladder and pancreas. General characteristics of liver, gallbladder, and pancreatic diseases. Liver diseases. Hepatosis. Massive progressive liver necrosis. Fatty hepatosis.	ID-1 GPC-5 ID-2 GPC-5			2		<i>Interview (discussion)</i>

	Characteristics, etiology and pathogenesis, pathanatomy, morpho- and histogenesis, complications. Hepatitis. Forms of hepatitis. Characteristics, etiology and pathogenesis, pathanatomy, morpho- and histogenesis, complications. Cirrhosis of the liver. Forms of cirrhosis. Characteristics, etiology and pathogenesis, pathanatomy, morpho- and histogenesis, complications. Liver cancer. Characteristics, etiology and pathogenesis, pathanatomy, morpho- and histogenesis, complications. Diseases of the gallbladder. Characteristics, etiology and pathogenesis, pathanatomy, morpho- and histogenesis, complications. Diseases of the pancreas. Pancreatitis. Pancreatic cancer. Characteristics, pathogenesis, morphogenesis. Complications.						
17.	Kidney diseases. General characteristics of kidney diseases. Glomerulopathy: glomerulonephritis, classification, pathogenesis, morphogenesis, complications. Nephrotic syndrome. Lipoid nephrosis: etiology, pathology, course. Membranous nephropathy. Characteristics, pathogenesis, morphogenesis. Complications. Kidney amyloidosis. Characteristics, pathogenesis, pathanatomy, morphogenesis. Complications. Tubulopathy. Acute renal failure: etiology, pathogenesis, stages, morphogenesis, pathology, complications. etiology, pathogenesis, Chronic tubulopathies. Interstitial nephritis. Tubulointerstitial nephritis: characteristics, etiology, pathogenesis, classification. Pyelonephritis: characteristics, etiology, pathogenesis, types,	ID-1 GPC-5 ID-2 GPC-5			2		<i>Interview (discussion)</i>

	complications, prevention. Urolithiasis: characteristics, etiology, pathogenesis, types, complications. Polycystic kidney disease: characteristics, etiology, pathogenesis, types, complications. Nephrosclerosis: characteristics, etiology classification, pathogenesis and morphogenesis, pathology, complications. Chronic renal insufficiency. Kidney tumors: characteristics, types, etiology, pathogenesis.						
18.	Diseases of the female genital organs and breast. Diseases of pregnancy and the postpartum period. Dyshormonal diseases of the female genital organs and breast. Glandular hyperplasia of the uterine mucosa. Endocervicosis. Adenomatosis of the cervix. Polyps of the cervix. Benign dysplasia breast cancer. Characteristics, types, etiology, pathogenesis. Inflammatory diseases of the female genital organs and breast. Endometritis. Mastitis. Characteristics, types, etiology, pathogenesis, complications. Tumors of the female genital organs and breast. Cervical cancer. Cancer of the uterine body. Ovarian cancer. Breast cancer. Characteristics, types, etiology, pathogenesis, complications. Diseases of pregnancy and the postpartum period. Gestosis. Eclampsia. Characteristics, types, etiology, pathogenesis, pathology, complications. Ectopic pregnancy. Spontaneous abortion and premature birth. Gestational trophoblastic disease. Cystic fibrosis: characteristics, types, etiology, pathogenesis, pathology, complications. Choriocarcinoma: characteristics, types,	ID-1 GPC-5 ID-2 GPC-5	2		4		<i>Interview (discussion)</i>

	etiology, pathogenesis, pathology, complications. Birth infection of the uterus: characteristics, types, etiology, pathogenesis, pathology, complications.						
19.	Pathology of the afterbirth. Placental insufficiency: characteristics, types, etiology, pathogenesis, pathology, complications. Malformations of the placenta: Pathology of the umbilical cord: characteristics, types, etiology, pathogenesis, pathology, complications. Pathology of the membranes. Afterbirth infections: characteristics, types, etiology, pathogenesis, pathology, complications. Tumors of the afterbirth. Trophoblastic disease.	ID-1 GPC-5 ID-2 GPC-5			2		<i>Interview (discussion)</i>
20.	Perinatal pathology. General characteristics of the perinatal period. Fetal and newborn asphyxia: characteristics, types, etiology, pathogenesis, pathology, complications. Hyaline membrane disease: characteristics, types, etiology, pathogenesis, pathology, complications. Pneumonia of the perinatal period. Bronchopulmonary dysplasia. Hemolytic disease of newborns: characteristics, types, etiology, pathogenesis, pathology, complications. Hemorrhagic disease of newborns. Birth trauma: characteristics, types, etiology, pathogenesis, pathology, complications. Hypoxic and ischemic brain damage. Infectious diseases of the perinatal period: congenital toxoplasmosis, congenital rubella, congenital cytomegaly, congenital herpes infection, neonatal sepsis. Characteristics, types, etiology, pathogenesis, pathology, complications.	ID-1 GPC-5 ID-2 GPC-5			2		<i>Interview (discussion)</i>
21.	Diseases of the male genital organs.	ID-1 GPC-5 ID-2 GPC-5			2		<i>Interview (discussion)</i>

	Dyshormonal diseases of the male genital organs. Benign prostatic hyperplasia. Characteristics, types, etiology, pathogenesis, complications. Inflammatory diseases of the male genital organs. Prostatitis. Orchitis. Characteristics, types, etiology, pathogenesis, complications. Tumors of the male genital organs. Prostate cancer. Testicular cancer. Characteristics, types, etiology, pathogenesis, complications.						
22.	Diseases of the endocrine glands. General characteristics of diseases of the endocrine glands. Pituitary gland diseases: acromegaly, pituitary nanism, cerebral pituitary cachexia, Itsenko's disease Cushing's disease, adiposogenital dystrophy, diabetes insipidus, pituitary tumors. Characteristics, types, etiology, pathogenesis, pathology, complications. Diseases of the adrenal glands: Addison 's disease. Characteristics, types, etiology, pathogenesis, pathology, complications. Diseases of the thyroid gland: goiter, thyroiditis and tumors. Characteristics, types, etiology, pathogenesis, pathology, complications. Diseases of the parathyroid gland: primary and secondary hyperplasia. Characteristics, types, etiology, pathogenesis, pathology, complications. Diseases of the pancreas: diabetes mellitus. Characteristics, types, etiology, pathogenesis, pathology, complications. Diseases of the genital glands.	ID-1 GPC-5 ID-2 GPC-5	2		2		<i>Interview (discussion)</i>
23.	Vitamin deficiency. Rickets. Characteristics, types, etiology, pathogenesis, pathology, complications. Scurvy. Characteristics, types, etiology, pathogenesis,	ID-1 GPC-5 ID-2 GPC-5					<i>Interview (discussion)</i>

	pathology, complications. Xerophthalmia. Characteristics, types, etiology, pathogenesis, pathology, complications. Pellagra. Characteristics, types, etiology, pathogenesis, pathology, complications. Vitamin B12 and folic acid deficiency. Characteristics, types, etiology, pathogenesis, pathology, complications.						
24.	Diseases of the musculoskeletal system. Diseases of the bone system. Parathyroid osteodystrophy. Characteristics, types, etiology, pathogenesis, pathology, complications. Osteomyelitis. Characteristics, types, etiology, pathogenesis, pathology, complications. Fibrotic dysplasia. Osteopetrosis. Characteristics, types, etiology, pathogenesis, pathology, complications. Paget's disease. Characteristics, types, etiology, pathogenesis, pathology, complications. Diseases of joints. Osteoarthritis. Rheumatoid arthritis. Characteristics, types, etiology, pathogenesis, pathology, complications. Diseases of skeletal muscles. Progressive muscular dystrophy. Myasthenia gravis. Characteristics, types, etiology, pathogenesis, pathology, complications.	ID-1 GPC-5 ID-2 GPC-5			2		<i>Interview (discussion)</i>
25.	Diseases of the central nervous system. General characteristics of CNS diseases. Classification. Alzheimer's disease. Characteristics, types, etiology, pathogenesis, pathology, complications. Amyotrophic lateral sclerosis (Charcot's disease). Characteristics, types, etiology, pathogenesis, pathology, complications. Multiple sclerosis (multiple sclerosis). Characteristics, types, etiology, pathogenesis,	ID-1 GPC-5 ID-2 GPC-5	2		2		<i>Interview (discussion)</i>

	pathology, complications. Encephalitis. Tick-borne encephalitis. Characteristics, types, etiology, pathogenesis, pathology, complications.						
26.	Infectious diseases. General characteristics of infectious diseases. Clinical and morphological characteristics. Classification. Viral diseases. Acute respiratory viral infections. Flu. Parainfluenza. Respiratory syncytial infection. Adenovirus infection. Characteristics, types, etiology, pathogenesis, pathology, complications. Acquired immunodeficiency syndrome. Epidemiology. The source of infection. Transmission paths. Etiology, pathogenesis. The course of the syndrome acquired immunodeficiency and its morphology. The clinical picture of acquired immunodeficiency syndrome. Natural smallpox. Characteristics, types, etiology, pathogenesis, pathology, complications. Rabies. Characteristics, types, etiology, pathogenesis, pathology, complications. Rickettsiosis. Characteristics, types, etiology, pathogenesis, pathology, complications. Endemic typhus. Sporadic typhus fever. Koo fever. Characteristics, types, etiology, pathogenesis, pathology, complications. Diseases caused by bacteria. Typhoid fever. Characteristics, types, etiology, pathogenesis, pathology, complications. Salmonellosis. Dysentery. Characteristics, types, etiology, pathogenesis, pathology, complications. Yersiniosis. Cholera. Characteristics, types, etiology, pathogenesis, pathology, complications. Plague. Tularemia.	ID-1 GPC-5 ID-2 GPC-5					<i>Interview (discussion)</i>

	Characteristics, types, etiology, pathogenesis, pathology, complications. Brucellosis. Anthrax. Characteristics, types, etiology, pathogenesis, pathology, complications. Recurrent typhus. Characteristics, types, etiology, pathogenesis, pathology, complications. Tuberculosis. Characteristics, types, etiology, pathogenesis, pathology, complications. Syphilis. Characteristics, types, etiology, pathogenesis, pathology, complications. Sepsis. Septicemia. Chroniosepsis. Characteristics, types, etiology, pathogenesis, pathology, complications. Fungal diseases (mycoses). Dermatormycosis. Visceral mycoses. Characteristics, types, etiology, pathogenesis, pathology, complications. Diseases caused by protozoa and helminths. Malaria. Amoebiasis. Balantidiasis. Echinococcosis. Cysticercosis. Opisthorchiasis. Schistosomiasis. Characteristics, types, etiology, pathogenesis, pathology, complications.						
27.	Occupational diseases. General characteristics of occupational diseases. Occupational diseases caused by exposure to chemicals production factors. Characteristics, types, etiology, pathogenesis, pathology, complications. Occupational diseases caused by exposure to industrial dust (pneumoconiosis). Silicosis. Characteristics, types, etiology, pathogenesis, pathology, complications. Silicatosis: asbestosis, talcosis, mica pneumoconiosis. Characteristics, types, etiology, pathogenesis, pathology, complications.	ID-1 GPC-5 ID-2 GPC-5					<i>Interview (discussion)</i>

	Metalloconiosis: siderosis, aluminosis, berylliosis, titanosis, baritosis, stannosis. Characteristics, types, etiology, pathogenesis, pathology, complications. Carboconiosis: anthracosis and graphitosis. Characteristics, types, etiology, pathogenesis, pathology, complications. Pneumoconiosis. Characteristics, types, etiology, pathogenesis, pathology, complications. Occupational diseases caused by exposure to physical factors. Caisson (decompression) disease, diseases due to exposure industrial noise (noise sickness), vibrations (vibration sickness), electromagnetic waves of radio frequencies and ionizing radiation (radiation sickness). Characteristics, types, etiology, pathogenesis, pathology, complications. Occupational diseases caused by overexertion. General characteristics. Occupational diseases caused by exposure to biological factors.						
28.	Diseases of the orofacial region. Diseases of the hard tissues of the tooth: caries, non-caries lesions. Diseases of the pulp and periapical tissues of the tooth: reactive changes in the pulp, pulpitis, periodontitis. Gum and periodontal diseases: gingivitis, dental deposits, periodontitis, periodontal disease, idiopathic progressive periodontal disease, periodontal diseases. Diseases of the jaw: inflammatory diseases, cysts of the jaw bones, tumor-like diseases, tumors, odontogenic tumors. Diseases of the salivary glands: sialoadenitis, salivary stone disease, glandular cysts, tumors of the salivary glands, tumor-like diseases. Diseases	ID-1 GPC-5 ID-2 GPC-5			4		<i>Interview (discussion)</i>

	of the lips, tongue, and soft tissues of the oral cavity: cheilitis, glossitis, stomatitis, precancerous diseases, and tumors.						
29.	Childhood infections. Varicella: characteristics, types, etiology, pathogenesis, pathology, complications. Measles: characteristics, types, etiology, pathogenesis, pathology, complications. Polymyelitis: characteristics, types, etiology, pathogenesis, pathology, complications. Diphtheria: characteristics, types, etiology, pathogenesis, pathology, complications. Scarlet fever: characteristics, types, etiology, pathogenesis, pathology, complications. Meningococcal infection: characteristics, types, etiology, pathogenesis, pathology, complications.	ID-1 GPC-5 ID-2 GPC-5	2		2		<i>Interview (discussion)</i>
30.	Tumors in children. Dysontogenetic tumors. Tumors from embryonic cambial tissues.	ID-1 GPC-5 ID-2 GPC-5			2		<i>Interview (discussion)</i>
Section 3. Clinical pathological anatomy							
31.	Organization of postmortem diagnostics in institutions and departments of the pathology profile. Regulation of the organization of pathoanatomic autopsies in federal orders and regulatory documents. The procedure for sending the corpses of deceased patients for a pathoanatomical autopsy. The procedure for conducting pathoanatomic autopsies. Stages of pathoanatomic examination of a corpse (procedure for postmortem diagnosis).	ID-1 GPC-5 ID-2 GPC-5			2		<i>Interview (discussion)</i>
32.	Features of pathoanatomic autopsy of corpses of persons who died after surgical interventions, intensive care and intensive care. Features of pathoanatomic autopsy of corpses of persons who died after surgical interventions. Features of	ID-1 GPC-5 ID-2 GPC-5	2		2		<i>Interview (discussion)</i>

	pathoanatomic autopsy of corpses of persons who died after intensive care and intensive care						
33.	Features of pathoanatomic examination of corpses of persons who died from infectious diseases and especially dangerous infections. General principles of pathoanatomical examination of corpses of persons who died from infectious diseases and especially dangerous infections. Features of the pathoanatomical examination of corpses of persons who died from the plague. Features of the pathoanatomical examination of corpses of persons who died of cholera. Features of the pathoanatomical examination of corpses of persons who died from anthrax. Transportation and burial of corpses.	ID-1 GPC-5 ID-2 GPC-5					<i>Interview (discussion)</i>
	TOTAL in 5 Semester		18		54	36	
	TOTAL		34		102	80	

6. Assessment Tools Fund for the Discipline (Module)

The assessment tools fund (ATF) for the discipline (module) «Pathological anatomy, clinical pathological anatomy» is based on the list of competencies to be mastered, indicating the stages of their formation in the process of mastering the discipline (module). The ATF provides an objective control over the achievement of the planned learning outcomes. The ATF includes:

- A description of indicators and criteria for evaluating competencies at various stages of their formation, a description of evaluation scales;
- Methodological materials determining the procedures for evaluating knowledge, skills, abilities and (or) work experience characterizing the stages of competency formation;
- Standard control tasks and other materials necessary for assessing knowledge, skills, and the level of mastery of the formed competencies in the process of mastering the discipline (module).

The ATF is an appendix to this discipline (module) program.

7. Methodological Guidelines for Students on Mastering the Discipline

When starting work, each student must take into account the following provisions.

The discipline (module) is structured on a thematic principle; each topic represents a logically completed section.

The lecture material is dedicated to the consideration of key, basic provisions of the courses and the clarification of learning tasks assigned for the independent work of students.

Laboratory works are aimed at gaining practical experience in the relevant subject area.

The independent work of students is aimed at the independent study of additional material, preparation for practical and laboratory classes, as well as the execution of all types of independent work.

In order to successfully master the discipline, it is important to complete all types of independent work employing the recommended sources of information.

8. Educational, Methodological, and Informational Support for the Discipline

8.1. List of Main and Additional Literature Required for Mastering the Discipline (Module)

8.1.1. List of Main Literature:

1. Paukov V.S. Pathological Anatomy: textbook. - Moscow: GEOTAR-Media, 2022. – 752 p.
2. Robbins, Cotran Pathologic Basis of Disease. 10th. – ELSEVIER, 2020. – 1500 p.

8.1.2. List of Additional Literature:

1. Harsh Mohan Textbook of Pathology, 8 ed. - JayPee Brothers India, 2018. – 1028 s.
2. Raik-Hiio Mikelsaar Study of disease. General pathology I. Introduction alteration. – Tartu, 2003.

8.2. List of Educational and Methodological Support for the Independent Work of Students in the Discipline (Module)

Bicheva, G.V. Methodological guidelines on the discipline "Pathological anatomy, clinical pathological anatomy" for students of specialty 31.05.01 General Medicine [Electronic version], Stavropol: NCFU (electronic version)

8.3. List of Resources of the Information and Telecommunications Network **Internet Required for Mastering the Discipline (Module)**

1. <http://rudocor.net/> - Medical Portal
2. <http://www.e-reading.club/> - Large Online Library
3. <http://www.pubmed.com/> - database of full-text articles on medicine
4. <http://www.spravocnikpolekarstvam.ru/> - free online reference guide
5. <https://dic.academic.ru/> - Dictionaries and encyclopedias
6. <https://www.rmj.ru/> - Russian Medical Journal
7. <https://www.studentlibrary.ru/> - EBS "Student Consultant"

9. List of Information Technologies Employed through the Discipline (Module), Including a List of Software and Information Reference Systems

When delivering lectures, computer equipment and demonstrations of multimedia presentation materials are used. In seminars and practical classes, students deliver presentations prepared by them during the hours of independent work.

Information Reference Systems:

Information-reference and information-legal systems used in the study of the discipline:

1.	The official website of the library of the FGAOU IN NCFU Access mode: http://catalog.ncstu.ru/catalog
2.	Electronic library system "University Library Online" - www.biblioclub.ru (Agreement No. 50-04/19 on the provision of information services from 13.05.2019)
3.	Electronic library system "IPRbooks" (LICENSE AGREEMENT No. 5168/19 dated 05/13/2019 for the provision of access to the electronic library system IPRbooks. Organization: IP Ar Media Company, LLC)
4.	"eLIBRARY.RU ": [Scientific Electronic Library]. – URL: http://elibrary.ru
5.	The GARANT information reference system.roo // Access mode: http://www.garant.ru/

6.	Legal reference system Russian legislation and judicial practice in freely available - http://www.pravo.ru/
7.	Информационная справочная система КонсультантПлюс. // Режим доступа: http://www.consultant.ru

Software:

1.	Alt Workstation 10
2.	Alt Workstation K
3.	Alt Server
4.	Office software package – P7-Office

10. Description of the Material and Technical Resources Required for the Educational Process for the Discipline (Module)

Lecture classes	A classroom equipped with multimedia equipment and technical training facilities.
Laboratory classes	23-308: a set of educational furniture for 20 seats, a magnetic marker board, a projector, a computer with the necessary set of licensed software. Visual material: Endocrine pathology. Diseases of the male and female genital organs; Circulatory disorders. Thrombosis. Embolisms; Degenerative processes (dystrophy, atrophy, necrosis); Atherosclerosis. Arterial hypertension. Cerebrovascular disease. Coronary heart disease; Benign and malignant tumors. Cancers of organs; Hemoblastosis; Gastritis. Peptic ulcer disease. Appendicitis; Diseases of the liver and gallbladder A set of micro-preparations on pathological anatomy; A set of micro-preparations "Hematology and leukemia"; A demonstration set of models on anemia. A binocular light microscope.
Independent work	A room for the independent work of students, equipped with computer hardware with the capability to connect to the Internet network and provide access to the electronic information and educational environment of the university.

11. Specific Features of Mastering the Discipline (Module) by Persons with Disabilities

Students with disabilities shall be provided with special textbooks, teaching aids, and didactic materials, special technical training facilities for collective and individual use, the services of an assistant (helper) providing the necessary technical assistance to the students, as well as the services of sign language interpreters and tactile sign language interpreters.

The mastery of the discipline (module) by students with disabilities may be organized jointly with other students, as well as in separate groups.

Mastering the discipline (module) by students with disabilities is to be carried out taking into account the peculiarities of psychophysical development, individual capabilities, and health status.

In order to ensure the accessibility of higher education under the educational program for persons with disabilities, the following is provided during the mastery of the discipline (module):

- 1) for persons with visual impairments:
 - the presence of an assistant offering the student the necessary technical assistance, taking into account individual features (help taking the workplace, moving around, reading and formatting the task, including writing under dictation),
 - written tasks, as well as instructions on the procedure for their execution, are formatted in an enlarged font,

- special textbooks, teaching aids, and didactic materials (having a large font or audio files), individual uniform lighting of at least 300 lux, if necessary, a magnifying device is provided to the student to complete the task;

2) for persons with hearing impairments:

- the presence of an assistant providing the student with the necessary technical assistance, taking into account individual characteristics (helps to take a workplace, move around, read and format the task, including writing with dictation),
- the availability of sound-amplifying equipment for collective use is ensured; if necessary, sound-amplifying equipment for individual use is provided to the student;
- provision with proper sound means of reproducing information is ensured;

3) for persons with musculoskeletal disorders (including severe motor function impairments of the upper limbs or the absence of upper limbs):

- written tasks are performed on a computer with specialized software or are dictated to an assistant;
- at the request of the student, tasks may be performed verbally.

12. Specific Features of Implementing the Discipline with the Use of Distance Learning Technologies and E-Learning

Subject to Part 1 of Article 16 of the Federal Law of December 29, 2012, No. 273-FZ On Education in the Russian Federation, e-learning shall be viewed as the arrangement of educational activities employing information contained in databases and used in the implementation of educational programs, as well as information technologies, technical means, and information and telecommunication networks that ensure the processing and transmission of the specified information via communication lines, and the interaction of students and pedagogical workers.

Remote (distance) learning technologies are understood as educational technologies implemented mainly with the use of information and telecommunication networks during the indirect (at a distance) interaction of students and pedagogical workers.

The implementation of the discipline may be carried out with distance learning technologies and e-learning in full or in part. The components of the Educational And Methodological Complex (EMC) of the discipline (working program of the discipline, assessment and methodological materials, forms of attestation) implemented with the use of distance learning technologies and e-learning contain an indication of their use.

When arranging educational activities with distance learning technologies and e-learning, asynchronous and synchronous methods of interaction between participants in educational relations via the information and telecommunications network Internet may be offered.

When using distance learning technologies and e-learning, the schedule for the discipline shall indicate: methods of interaction among participants in educational relations via the information and telecommunications network Internet (VCC – videoconferencing, ET – electronic testing); links to the electronic information and educational environment of NCFU, to educational platforms and resources of other organizations to which open access is provided via the information and telecommunications network Internet; for synchronous learning – the time of online classes and instructors; for asynchronous learning – the authors of online courses.

When arranging intermediate attestation with distance learning technologies and e-learning, the Methodological Recommendations on the use of technical means ensuring the objective reliability of results when conducting intermediate and state final attestation for higher education educational programs – Bachelor's Degree programs, Specialist's Degree programs, and Master's Degree programs with distance learning technologies are used (Letter of the Ministry of Science and Higher Education of Russia dated December 7, 2020, # MN-19/1573-AN On sending methodological recommendations).

The implementation of the discipline with the use of e-learning and distance learning technologies is carried out using the electronic information and educational environment of NCFU, to which students are provided access via the information and telecommunications network Internet, or using the resources of other organizations, including platforms providing services for videoconferencing, online meetings, and distance learning (MTS-Link), as well as using the capabilities of social networks to carry out communication between students and instructors.

The educational and methodological support for a discipline shall be ensured with e-learning and distance learning technologies includes the working program presented in electronic form, educational and methodological manuals or a course of lectures, methodological guidelines for performing various types of educational activities of students provided for by the discipline, and other educational and methodological materials posted in the information and educational environment of NCFU.