

**PRIVATE HIGHER EDUCATIONAL INSTITUTION
"INTERNATIONAL ACADEMY OF ECOLOGY AND MEDICINE"
Department of Fundamental Disciplines**

WORKING PROGRAM OF EDUCATIONAL DISCIPLINE

" Pathomorphology "

LEVEL OF HIGHER EDUCATION Second (master's) level
DEGREE OF HIGHER EDUCATION Master's degree
BRANCH OF KNOWLEDGE 22 Healthcare
SPECIALTY 222 Medicine

Reviewed and approved
at the meeting of the Academic Council
Protocol No. 1, dated August 31, 2017

Kiev 2017

Working program of educational discipline **Pathomorphology** for the preparation of applicants for higher education of the second (master's) level of higher education in the specialty 222 Medicine.

Introduction

The program of the discipline " Pathomorphology " is composed according to the educational-professional program for training specialists of the second (master's) level of specialty 222 Medicine, field of knowledge 22 Health care, the Law of Ukraine "On Higher Education" from 01.07.2014 № 1556-VII (Article 13, item 7), the provision "On the organization of the educational process in the PHEE" International Academy of Ecology and Medicine ", methodological recommendations approved by the Central Methodical Cabinet of Higher Medical Education of the Ministry of Health of Ukraine on curriculum development standards of higher education. The discipline " Pathomorphology " belongs to the section of the General preparation of the curriculum for the preparation of higher education applicants of the second educational (master's) level.

Description of the discipline

The structure of educational discipline	Branch of knowledge, training direction, specialty, education level	Characteristics of educational discipline	
		Full-time education	
Credits ECTS – 7,0	Field of knowledge: 22 Healthcare		
Modules – 2	Specialty: 222 Medicine	Year of the education:	
Submodules – 7		3rd	
		Semester:	
The amount of hours - 210		V	VI
	Educational level: master's degree	Lectures:	
		20 h.	20 h.
		Practical classes:	
		30 h.	40 h.
		Self-education (individual work):	
		40 h.	60 h.
		Type of control: Current and final, exam	

The subject of study of the discipline "Pathomorphology" is the structural basis of human diseases for in-depth study of the fundamentals of medicine and the clinical picture of diseases with the subsequent use of knowledge in the practice of medicine.

Pathomorphology - a discipline based on the study of medical biology, medical and biological physics, bioinorganic and bioorganic chemistry, human anatomy, histology, cytology and embryology, microbiology, virology and immunology and integrates with these disciplines; the study of the discipline is also based on modern data of morphological research (electron microscopy, immunohistochemistry, histo- and cytochemistry, molecular biology); lays an understanding of the basis of cell pathology and general pathological processes, the set of which determines the morphological manifestations of diseases; lays the foundations of knowledge of the pathomorphology of diseases at different stages of their development (morphogenesis), the structural foundations of recovery, complications and consequences of diseases; studies variants of pathomorphosis of diseases that arise in connection with changes in human living conditions and as a result of various therapeutic measures (pathology of therapy); lays the foundations of knowledge about the organization of the pathological service and its purpose.

Interdisciplinary links based on the study of medical biology, anatomy, histology and embryology by students, integrated with these disciplines; lays the foundations for students to study physiology, biochemistry, pathological physiology, propaedeutics of clinical disciplines, which involves the integration of teaching with these disciplines and the formation of skills to apply knowledge of pathomorphology in the process of further study and professional activity.

1. PURPOSE AND TASKS OF THE DISCIPLINE.

1.1. The purpose of teaching the discipline " Pathomorphology " follows from the goals of the educational-professional training program for applicants for the second educational (master's) level of higher education and are determined by the content of those systemic knowledge and skills that must be mastered by a doctor. The knowledge that students receive from the discipline " Pathomorphology " is basic for the block of disciplines that provide scientific and professional training.

The purpose of teaching the discipline "Pathomorphology" is to study the etiology, pathogenesis, microscopic and ultramicroscopic changes of organs and tissues of the human body in various living conditions, which involves the study of typical general pathological processes, the combination of which determines the morphological manifestations of diseases. clinical manifestations, structural bases of recovery, complications and consequences, and also studying of methods of

pathomorphological researches: autopsy, biopsy, research of biopsy material, experimental modeling of diseases.

1.2. The main tasks of studying the discipline "Pathomorphology" are:

- understanding of the basics of cell pathology and general pathological processes, the set of which determines the morphological manifestations of certain diseases;
- knowledge of the morphology of diseases at different stages of their development (morphogenesis), the structural basis of recovery, complications and consequences of diseases;
- study of variants of pathomorphosis of diseases that occur in connection with human living conditions, change due to various therapeutic measures (pathology of therapy);
- comparison of morphological and clinical manifestations of diseases at all stages of their development;
- acquisition of skills of clinical and anatomical analysis, synthetic generalization of diagnostic signs of diseases and their correct interpretation in causal relations.

1.3. Competencies and learning outcomes, the formation of which is facilitated by the discipline " Pathomorphology ".

According to the requirements of the Standard of Higher Education, the discipline " Pathomorphology " provides students with the following competencies:

integrated:

- Ability to solve typical and complex specialized problems and practical problems in professional activities in the field of health care, or in the learning process, which involves research and / or innovation and is characterized by complexity and uncertainty of conditions and requirements.

General:

- ability to abstract thinking, analysis and synthesis;
- ability to learn and master modern knowledge;
- ability to apply knowledge in practical situations;
- knowledge and understanding of the subject area and understanding of professional activity;
- ability to make informed decisions;
- skills of using information and communication technologies;
- definiteness and perseverance in terms of tasks and responsibilities.

Special (professional, substantive):

- ability to master the methods of pathomorphological research: autopsy, biopsy, experimental modeling of diseases;
- ability to evaluate the results of pathological autopsy, biopsy and sectional material;
- ability to analyze the structural basis of the development of diseases and their clinical manifestations, the structural basis of recovery, complications and consequences.

Matrix of competencies

Matrix of competencies					
№	Competence	Knowledge	Skills	Communication	Autonomy and responsibility
General competencies					
	Ability to apply knowledge of pathomorphology in practical situations				
Special competencies					
	Ability to evaluate results autopsy and methods in vivo diagnosis of diseases	To have specialized knowledge of structural touring background of diseases, to know standard methods of autopsy and lifelong diagnosis of diseases	To be able to analyze the structural basis of human diseases for in-depth study of the fundamentals of medicine and the clinical picture of diseases with the subsequent use of knowledge in the practice of medicine	It is reasonable to evaluate the results of autopsy and methods of lifelong diagnosis of diseases	To be responsible for deciding on the evaluation of autopsy results and in vivo disease diagnosis methods

Learning outcomes:

Integrative final learning outcomes, the formation of which is facilitated by the discipline:

" Pathomorphology " as an academic discipline lays the foundation for the further formation of the following program learning outcomes in accordance with the Standard of Higher Education of Ukraine for undergraduate training of specialists of the second (master's) level of the specialty 222"Medicine":

1. To establish the most probable or syndromic diagnosis of the disease and to appoint a laboratory and / or instrumental examination of the patient - in relation to hereditary and parasitic diseases.
2. To plan measures to prevent the spread of infectious diseases, to detect and early diagnosis of infectious diseases.
3. To identify risk factors for the occurrence and course of the disease.
4. To identify negative environmental factors. To assess the impact of socio-economic and biological determinants on the health of the individual, family, population.
5. To adhere to a healthy lifestyle, to use the means of self-regulation and self-control.

Learning outcomes for the course: On completion of study of discipline

" Pathomorphology " students must

know:

1. Pathomorphological nomenclature.
2. Determination of the initial mechanisms of cell and tissue damage.
3. Knows and understands the basic mechanisms of cell and tissue damage.
4. Knows and understands the clinical course of specific and non-specific inflammation and describes the processes of tissue and organ regeneration.
5. Knows and understands the definition and pathophysiology of shock, with particular emphasis on the taking into account the differentiation of causes of shock and multiorgan failure.
6. Understands the relationship between morphological abnormalities and the function of changed organs and systems as well as clinical symptoms and possibilities of diagnostics and treatment.
7. Knows and understands external and internal pathogenic factors, modifiable and non-modifiable.
8. Knows and understands the etiology of hemodynamic disturbances retrograde changes and progressive changes.
9. Knows and understands the issues of detailed organ pathology, macroscopic and microscopic images and the clinical course of lesion pathomorphological in individual organs.
10. Knows and understands the clinical forms of the most common diseases of individual systems and organs, metabolic diseases and disorders of water, electrolyte and acid-base metabolism.
11. Knows and understands the consequences of developing pathological changes for the topographically adjacent organs.
12. Pathomorphology of shocks together with differentiation of the causes of all types of organ failure.
13. Etiology of hemodynamic disorders, regressive and progressive metamorphoses
14. Identification of specific pathology of organs, macro- and microscopic picture and clinical significance of morphological changes in organs
15. Description of the consequences of the development of pathological changes in topographically neighboring organs
16. Principles of keeping, storing and sharing medical records and protecting personal data of patients.
17. List of external, internal, altered and permanent factors of the disease.

To be able:

1. To evaluate information about the diagnosis in the health care institution, its unit, using knowledge of the structural basis of the disease, based on the results of autopsy and methods of lifelong diagnosis of diseases.
2. Relate images of tissue and organ damage to clinical manifestations of the disease, history and results of laboratory determinations.
3. Describes pathological changes in cells, tissues and organs in the field of circulatory disorders, regressive changes, progressive changes and

inflammations.

4. Observes the patient's rights, including: the right to the protection of personal data, the right to privacy, the right to information about the state of health, the right to express informed consent to treatment or withdrawal from it, and the right to a dignified death.
5. Uses and processes information using information technology and using contemporary sources of medical knowledge.
6. Critically analyzes scientific literature and draws conclusions
7. Collects and protects biological and tissue material for diagnostic tests, including cytological tests.
8. Interprets the results of additional tests and examinations.
9. Maintains ongoing patient records, issues referrals for specialist dental and general medical examinations or treatment.
10. Presents selected medical problems in oral or written form, in a manner adequate to the level of recipients.
11. Describes pathological changes of cells, tissues and organs according to basic mechanisms.
12. Evaluates posthumous changes (signs of death)
13. Analyze the reactive, defensive and adaptive phenomena and dysregulation caused by the etiological agent.

Is ready to:

1. Recognizing and recognizing their own limitations and making self-assessment of deficits and educational needs.
2. Use objective sources of information;
3. Recognizes own diagnostic and therapeutic restrictions, educational needs, plans educational activities.
4. Is able to work in a team of professionals in a multicultural and multinational environment. Implements the principles of professional camaraderie and cooperation with representatives of other professions in the field of health protection.
5. Observes medical confidentiality and patient's rights.
6. Formulate conclusions from their own measurements or observations;

2. CONTENTS OF EDUCATIONAL DISCIPLINE.

210 hours of 7.0 ECTS credits are for the study of the academic discipline, incl. lectures 40 hours, practical (seminars) 70 hours, independent work 100 hours. Normative discipline.

The program of the discipline is structured into 2 modules:

Module I. General pathomorphology.

Module II. Special pathomorphology.

3. THE STRUCTURE OF EDUCATIONAL DISCIPLINE.

Topic		Hours					
		Total	Full-time education				
			including				
			Lec.	Pr.	Sem.	Ind.	ISW
	Module I. General pathomorphology.						
Topic 1.	Subject and tasks of pathomorphology. Methods of pathomorphological research. The main stages of development of pathomorphology.		1	2			2
Topic 2.	Morphology of reversible and irreversible damage to cells and tissues.		1	2			2
Topic 3.	Intracellular accumulation of proteins, carbohydrates and lipids.		1	2			2
Topic 4.	Extracellular accumulation of proteins, carbohydrates and lipids. Disorders of metabolism and their metabolism. Morphology of pathological accumulation of endogenous and exogenous pigments. Morphology of mineral metabolism disorders.		1	2			2
Topic 5.	Disorders and death of cells and tissues. Necrosis and apoptosis. Pathological anatomy of organ failure. Fundamentals of thanatology. Death, definition, signs of death.		-	2			2
Topic 6.	Circulatory disorders: hyperemia, ischemia, heart attack, bleeding, hemorrhage, stasis, plasmorrhage. Shock. Disorders of lymphatic circulation.		-	2			2
Topic 7.	Hemostasis disorders. Thrombosis, internal combustion engine syndrome. Embolism.		-	2			2
Topic 8.	The general doctrine of inflammation. Exudative inflammation. Morphology of exudative inflammation.		2	2			2
Topic 9.	Proliferative inflammation. Granulomatosis. Specific inflammation.		2	2			2
Topic 10.	Pathomorphology of the immune system. Reactions and mechanisms of hypersensitivity.		2	2			2
Topic 11.	Amyloidosis. Autoimmune diseases. Immunodeficiency states.		2	2			2
Topic 12.	Processes of adaptation and compensation. Regeneration and repair. Hypertrophy, hyperplasia. Atrophy. Sclerosis.		-	2			2
Topic 13.	The general doctrine of tumors. Morphological features of epithelial tumors without specific localization.		2	2			2
Topic 14.	Nomenclature and morphological features of organ-specific tumors of the epithelium.		2	2			2
Topic 15.	Nomenclature and morphological features of mesenchymal tumors.		2	2			2
Topic 16.	Nomenclature and morphological features of nervous tissue tumors. Features of tumors of the central nervous system. Nomenclature and morphological features of tumors of melanin-forming tissue.		2	2			2
Topic 17.	Leukemia (leukemia) and lymphoma.		-	2			2
Topic 18.	Anemia. Thrombocytopenia and thrombocytopathy. Coagulopathies.		-	2			2
Topic 19.	Practical skills from module 1 "General pathomorphology".		-	2			2
Topic 20.	Final module control		-	2			2
Total		100	20	40	-	-	40
	Module II. Special pathomorphology.						
Topic 1.	Arteriosclerosis. Atherosclerosis.		2	2			4
Topic 2.	Hypertension and hypertension. Ischemic heart disease.		2	2			4
Topic 3.	Systemic connective tissue diseases with autoimmunization.		2	2			4
Topic 4.	Diseases of the nervous system.		-	2			4

Topic 5.	Acute and chronic respiratory diseases.		2	2			4
Topic 6.	Diseases of the gastrointestinal tract.		-	2			4
Topic 7.	Diseases of the liver, biliary system and pancreas.		2	2			4
Topic 8.	Diseases of the kidneys.		2	2			4
Topic 9.	Diseases of the genital organs.		2	2			4
Topic 10.	Pregnancy pathology.		2	2			4
Topic 11.	Prenatal and perinatal pathology.		2	2			4
Topic 12.	Diseases of the endocrine system.		-	2			4
Topic 13.	Primary tuberculosis. Hematogenous and secondary tuberculosis.		2	2			4
Topic 14.	Viral and bacterial infections. Quarantine infections		-	2			4
Topic 15.	Final module control		-	2			4
	Total	110	20	30	-	-	60
	Total for the course	210	40	70	-	-	100

4. THEMATIC PLAN OF LECTURES

The 5 th semester	
№	TOPIC
	Module I. General pathomorphology.
1	Introduction to pathomorphology. Content and task of pathological anatomy. The main stages of its development. Methods of pathological anatomy diagnostic. Methods of pathomorphological investigations.
2	Cellular dystrophies. Pathomorphology of accumulation of complex proteins (hyalinosis) and lipids. Pathomorphology of accumulation of products of disturbed metabolism.
3	Inflammation: causes, morphogenesis. Pathomorphology of exudative inflammation.
4	Proliferative (productive) inflammation. Pathomorphology of proliferative inflammation.
5	Regeneration. Compensatory-adaptive processes.
6	Molecular and pathomorphological basis of immune response. Pathology of immune processes: hypersensitivity reactions.
7	Pathology of immune processes: amyloidosis, immunodeficiency. Autoimmune diseases.
8	Oncogenesis. Nomenclature and principles of tumor classification.
9	Morphological features of benign and malignant mesenchyme origin tumors. Peculiarities of sarcoma development and metastasis. Morphological features of melanin-producing tumors. Nomenclature and morphological features of nervous tissue

	origin tumors.
10	Epithelium origin tumors. Malignant and benign organospecific epithelium origin tumors. Peculiarities their development, metastasis, histological forms.

The 6 th semester	
№	TOPIC
	Module II. Special pathomorphology.
1.	Atherosclerosis and arteriosclerosis Hypertension and arteriosclerosis.
2.	Hypertension and symptomatic hypertension. Coronary heart disease.
3.	Systemic connective tissue diseases with autoimmunization. Acquired heart defects.
4.	Tuberculosis.
5.	Respiratory diseases.
6.	Kidney diseases.
7.	Diseases of the esophagus, stomach and intestines.
8.	Diseases of the liver, biliary system and pancreas.
9.	Diseases of the male and female reproductive systems. Breast disease.
10.	Pre-and perinatal pathology.

5. THEMATIC PLAN OF PRACTICAL CLASSES

The 5 th semester	
№	TOPIC
	Module I. General pathomorphology.
1	Introduction to pathomorphology. Content and task of pathological anatomy. The main stages of it development. Methods of pathological anatomy diagnostic. Methods of pathomorphological investigations.
2	Morphological changes of extracellular matrix (stroma) in response to injury. (Stromal-vascular degenerations). Morphology of complex proteins (hyalinosis) and lipids accumulation.
3	Morphological changes of cells in response to stress and toxin induced injury (parenchymatous degenerations / cells degenerations): protein, fatty and carbohydrate intracellular accumulation.
4	Morphology accumulation of disturbed metabolism products. Disturbance of iron and hemoglobingenic pigments metabolism. Morphological features of disturbed metabolism melanin as well as nucleoproteins and cuprum. Calcinosis.
5	Basis of thanatology. Necrosis. Clinical and morphological forms of necrosis. Selective death of highly specialized cells: pathogenic induced apoptosis, cell death caused by immune system and activated complement.
6	Acute systemic disturbance of blood circulation (acute coronary

	insufficiency, shock), systemic disturbance of blood circulation caused by chronic heart insufficiency and their outcomes. Regional disturbance of blood circulation: hyperemia, ischemia, plasmorrhagia, hemorrhage, hematoma). Disturbance of lymph formation and circulation.
7	Disturbance of hemostasis: hemorrhagic syndrome, thrombosis, disseminated intravascular coagulation. Embolism. Thromboembolism of lung artery.
8	Inflammation: reasons, morphogenesis. Morphology of exudative inflammation.
9	Proliferative (productive) inflammation: with formation of pointed condyloma, productive inflammation caused by parasites, interstitial inflammation, granulomatous inflammation.
10	Molecular and pathomorphological basis of immune response. Pathology of immune processes: hypersensitivity reactions.
11	Pathology of immune processes: amyloidosis. Autoimmune diseases.
12	Regeneration. Structural basis of visceral organs and cells physiological adaptation. Morphology of cells accommodation processes. Adaptation and compensation processes.
13	Oncogenesis. Anatomical and microscopical features and kinds of tumor grow. Morphological characteristic of malignant tumors development basis stages. Nomenclature of tumors.
14	Epithelium origin tumors. Malignant and benign organospecific epithelium origin tumors. Peculiarities their development, metastasis, histological forms.
15	Diff. credit
The 6th semester	
№	TOPIC
1	Morphological features of benign and malignant mesenchyme origin tumors. Peculiarities of sarcoma development and metastasis. Fibroblastic, myofibroblastic and fibrohistiocytic origin tumors. Tumors of fat and muscle tissue. Tumors from blood vessels.
2	Morphological features of melanin-producing tumors. Nomenclature and morphological features of nervous tissue origin tumors (astrocyte, oligodendroglia, ependymal, neuronal and meningovascular tumors). Cranial and spine nervous origin tumors.
3	Haemopoietic and lymph tissue origin tumors.
4	Anemia. Thrombocytopenia and thrombocytopathy. Coagulopathy.
5	Practical skills from module 1 "General pathomorphology". Final modular control 1
Module II. Special pathomorphology.	
6	Arteriosclerosis. Atherosclerosis.
7	Hypertension and hypertension. Coronary heart disease.
8	Systemic connective tissue diseases with autoimmunization.

9	Diseases of the nervous system.
10	Acute and chronic respiratory diseases.
11	Diseases of the gastrointestinal tract.
12	Diseases of the liver, biliary system and pancreas.
13	Kidney disease.
14	Diseases of the male genitalia.
15	Diseases of the female genital organs.
16	Prenatal and perinatal pathology.
17	Diseases of the endocrine system.
18	Primary tuberculosis. Hematogenous and secondary tuberculosis.
19	Viral and bacterial infections. Quarantine infections
20	Final test control.

6. THEMATIC PLAN OF INDEPENDENT WORK OF STUDENTS (IWS)

The 5th semester

№	MODULE 1 TOPIC	Type of control
1	Preparation for practical classes - theoretical preparation and working off the practical skills.	Current control in practical classes
2	Elaboration of topics that are not included in the lesson plan:	
2.1.	Elements of ultrastructural cell pathology. Cell-matrix interactions. Cellular and extracellular mechanisms of trophic regulation.	Final modular control
2.2.	Violation of water-salt balance.	-“-
2.3.	Fibrous dysplasia. Parathyroid osteodystrophy. Eosinophilic granuloma. Osteomyelitis. Osteopetrosis. Paget's disease. Muscular dystrophies. Myasthenia.	-“-
2.4.	Pathomorphological changes in diseases related to nutrition. Radiation sickness. Occupational diseases.	-“-
3.	Preparation for the final modular control	<i>Final modular control</i>

The 6th semester

№	MODULE 2 TOPIC	Type of control
1.	Preparation for practical classes - theoretical preparation and working off the practical skills.	Current control in practical classes
2	Elaboration of topics that are not included in the lesson plan:	
2.1.	Systemic vasculitis.	Final modular control
2.2.	Cerebrovascular disease. Alzheimer's disease.	-“-

	Multiple sclerosis. Amyotrophic lateral sclerosis.	
2.3.	Congenital defects of the spine and spinal cord. Syringomyelia.	-“-
2.4.	Diseases caused by protozoa, helminths. Mycoses.	-“-
3	Preparation for the final modular control	<i>Final modular control</i>

7. THE LIST OF THEORETICAL QUESTIONS FOR PREPARATION OF STUDENTS TO THE FINAL MODULAR CONTROL.

Module I «General pathomorphology»

1. Pathological anatomy as a science, a branch of practical medicine and a teaching subject.
2. Characterization of the main stages of the development of pathological anatomy.
3. The role of domestic scientists in the development of pathological anatomy.
4. Characteristics of the basic classical methods of research in pathological anatomy.
5. General characteristics of modern methods of research in pathological anatomy: electron microscopy, immunohistochemistry, in situ hybridization, polymerase chain reaction, scope of application, significance for clinical medicine.
6. Elements of ultrastructural pathology of the cell. Cell-matrix interactions. Cellular and extracellular mechanisms of trophic regulation.
7. Typical pathological processes: definition, general characteristics.
8. Morphology of reversible and irreversible damage of cells and tissues. Dystrophy: general characteristics, classification, morphogenesis.
9. Morphogenesis and morphology of intracellular protein accumulation (parenchymal protein degeneration).
10. Morphogenesis and morphology of intracellular carbohydrate accumulation (parenchymal carbohydrate dystrophy).
11. Morphogenesis and morphology of intracellular lipid accumulation (parenchymatous fatty degeneration).
12. Morphogenesis and morphology of extracellular protein accumulation. Mucoid and fibrinoid swelling.
13. Morphogenesis and morphology of extracellular protein accumulation. Gialinosis: general characteristics, classification of morphogenesis, consequences.
14. Amyloidosis: definition, classification principles, morphological characteristics.
15. Morphogenesis and morphology of extracellular fat accumulation (stromal-vascular fatty degeneration).
16. Morphogenesis and morphology of extracellular accumulation of

- carbohydrates (stromal-vascular carbohydrate dystrophy).
17. Morphogenesis and morphology of the violation of exchange of hemoglobinogenic pigments.
 18. Morphogenesis and morphology of the violation of the exchange of proteinogenic pigments.
 19. Morphogenesis and morphology of the exchange of lipidogenic pigments, violation of the exchange of nucleoproteins.
 20. Morphogenesis and morphology of mineral metabolism. Infringement of calcium metabolism. Violation of the exchange of copper. Formation of stones: definition, mechanism of development, classification, significance and consequences.
 21. Death: definition, classification, signs, posthumous changes.
 22. Necrosis: definition, classification, clinical morphological forms, microscopic signs.
 23. Necrosis: definition, clinical-morphological forms. Coagulative and collocative necrosis.
 24. Necrosis: definition, clinical morphological forms. Gangrene, sequestration: definition, classification, causes and conditions of occurrence, morphology, meaning.
 25. Necrosis: definition, clinical morphological forms. Infarction: definition, classification, causes and conditions of occurrence, morphology, meaning.
 26. Circulatory disorders: general characteristics, classification.
 27. Arterial hyperemia: definition, classification, causes and conditions of occurrence, morphology, meaning.
 28. Acute and chronic venous hyperemia: definition, causes and conditions of origin, morphology, consequences, meaning.
 29. Anemia: definition, classification, causes and conditions of occurrence, morphology, consequences, significance.
 30. Bleeding: definition, classification, causes and conditions of occurrence, morphology, consequences, significance.
 31. Thrombosis: definition, causes of occurrence, clot morphology, favorable and adverse effects.
 32. Embolism: definition, classification, results, meaning.
 33. Thromboembolism: definition, morphological manifestations, consequences, values.
 34. Fat, air and tissue embolism: definition, causes, morphology, implications, significance.
 35. Shock: definition, classification, morphological manifestations, meaning.
 36. Violation of ion-osmotic and water balance.
 37. Inflammation, general information. Etiology, morphology and pathogenesis of inflammation. Classical signs of inflammation.
 38. Inflammation, terminology and classification. Clinical and morphological forms of inflammation.
 39. Exudative inflammation: definition, forms of exudative inflammation.
 40. Serous and fibrinous inflammation: causes, morphological picture,

- consequences, significance.
41. Purulent inflammation: etiology, classification, morphological picture, consequences, significance.
 42. Hemorrhagic, catarrhal, putride inflammation: causes, morphological picture, consequences.
 43. Productive (proliferative) inflammation: definitions, types of productive inflammation. Intermediate (interstitial) inflammation.
 44. Granulomatous inflammation: etiology, morphogenesis, classification, granulose effects.
 45. Specific and nonspecific granulomas. Tuberculosis granuloma. Morphological characteristic.
 46. Specific and nonspecific granulomas. Syphilitic granuloma (Gumma). Morphological characteristic.
 47. Specific and nonspecific granulomas. Leprosy granuloma (leproma). Sculptural granuloma. Morphological characteristic.
 48. Productive inflammation with the formation of polyps and condyloma. Morphological characteristic.
 49. Changes in the thymus gland, which arise when violations of immunogenesis.
 50. Changes in peripheral lymphoid tissue that arise when immunogenesis is violated.
 51. Hypersensitivity reactions: mechanism of development, morphological characteristics.
 52. Autoimmunization and autoimmune diseases: definition, classification, morphological manifestations.
 53. Immunodeficiency syndromes: definition, classification, causes of development, morphological manifestations.
 54. Compensation and adaptation: definitions, types of compensatory-adaptive reactions.
 55. Hypertrophy: definition, classification, morphological manifestations, consequences, values for an organism.
 56. Morpho-functional peculiarities of myocardial hypertrophy: morphological manifestations, consequences, values for an organism.
 57. Hyperplasia: definition, classification, morphological manifestations, consequences, values.
 58. Atrophy: definition, classification, morphological manifestations, consequences, values for an organism.
 59. Metaplasia: Definition, morphological manifestations, implications, values for the body.
 60. Regeneration: definition, classification, morphogenesis, meaning for an organism.
 61. Features of regeneration of some tissues and organs: regeneration of connective tissue, cover epithelium, blood vessels, myocardium, liver.
 62. Organization, fibrosis, sclerosis, cirrhosis. Definition of terms, morphogenesis, consequences, values for an organism.
 63. Types of healing of wounds. Dynamics of the reparative process with different

- types of healing of wounds.
64. Determination of tumor growth, as a typical pathological process, modern theories of carcinogenesis.
 65. Determination of tumor growth as a typical pathological process, the main properties of tumors.
 66. Precancerous conditions and changes. Obligatory and facultative precancer.
 67. The concept of tissue and cellular atypism with tumor growth.
 68. Morphogenesis and histogenesis of tumors. Types of tumor growth.
 69. Principles of classification of tumors. Distinctive features of benign and malignant tumors.
 70. Metastasis: Definition of the concept, paths, types, patterns, mechanisms.
 71. General characteristics and nomenclature of tumors originating from epithelial tissues.
 72. General characteristics of the nomenclature, morphological features of benign non specific epithelial tumors.
 73. General characteristics of the nomenclature, morphological features of malignant non specific tumors of epithelial tissues. Histological variants, metastasis.
 74. General characteristics of the nomenclature, morphological features of benign and malignant organ-specific tumors (organ-specific tumors of the skin, mammary gland, liver).
 75. General characteristics and nomenclature of tumors from tissues, derived from mesenchyma.
 76. General characteristics, nomenclature, morphological features of benign and malignant tumors of muscle tissues.
 77. General characteristics, nomenclature, morphological features of benign and malignant tumors of the proper connective tissue (fibrous).
 78. General characteristics, nomenclature, morphological features of benign and malignant tumors of bone tissue.
 79. General characteristics, nomenclature, morphological features of benign and malignant tumors of blood and lymphatic vessels.
 80. General characteristics, nomenclature, classification, morphological features of tumors of the central nervous system.
 81. General characteristics, nomenclature, classification, morphological features of tumors of the peripheral nervous system.
 82. General characteristics, nomenclature, classification, morphological features of tumors of melanin-forming tissue. Nevus, their species.
 83. General characteristics, nomenclature, classification, morphological features of tumors of melanin-forming tissue. Melanomas
 84. Features of tumor growth in childhood. Dysonotogenetic tumors. Teratomas and teratoblastomas.
 85. General characteristics, definition of the concept, classification of leukemias (hemoblastosis).
 86. General characteristics, classification, morphological manifestations, stages of acute leukemia (acute undifferentiated, acute myeloblastic, acute

- lymphoblastic leukemia). Causes of death in acute leukemia.
87. General characteristics, classification, morphological manifestations of chronic leukemia (chronic myeloid leukemia, chronic lymphatic leukemia).
 88. General characteristics, morphological manifestations of paraproteinemic leukemias. Myeloid Disease.
 89. Anemia: general characteristics, classification, morphological manifestations.
 90. Anemia due to violation of hematopoiesis: general characteristics, classification, morphological manifestations.
 91. Lymphomas: definition of concept, etiology, classification, morphological manifestations. Main morphological types of non-Hodgkin's lymphomas.
 92. Hodgkin's disease (lymphogranulomatosis): definition, classification, morphological manifestations.

Module II. Special pathomorphology.

1. Atherosclerosis: definition, general characteristic, etiology, pathogenesis, risk factors. Atherosclerosis morphogenesis (based on macro-and microscopy).
2. Clinical and morphological forms of atherosclerosis: the main pathomorphological manifestations, complications, causes of death.
3. Hypertension: definition, etiology, pathogenesis, risk factors, classification, stages of the course, morphological changes in the heart and blood vessels.
4. Clinical and morphological forms of hypertension. Changes in the kidneys with hypertension (at the macroscopic level).
5. The concept of secondary (symptomatic) hypertension.
6. Coronary heart disease: definition, general characteristic, etiology, pathogenesis, risk factors, classification. Acute focal ischemic myocardial dystrophy main pathomorphological manifestations, diagnostic methods, complications, outcomes, causes of death.
7. Acute myocardial infarction: definition, general characteristic, epidemiology, classification. Macroscopic changes (dynamics of tissue reactions) at different stages of acute heart attack. Complications, outcomes, causes of death.
8. Chronic coronary heart disease: definition, general description, classification, complications, outcomes, causes of death. Morphological manifestations of chronic cardiovascular failure.
9. Rheumatism: definition, general characteristic, etiology, pathogenesis, the main pathomorphological manifestations in the lungs, joints, brain. Heart damage in rheumatism: classification, pathomorphological manifestations, complications, outcomes, causes of death.
10. Rheumatoid arthritis: general characteristic, etiology, pathogenesis. The main pathomorphological manifestations in the internal organs and joints, complications, outcomes, causes of death.
11. Systemic lupus erythematosus: general characteristics, etiology, pathogenesis. The main pathomorphological manifestations, diagnostic criteria, complications, outcomes, causes of death.

12. Acquired heart defects: definition, etiology, pathogenesis, hemodynamic features.
13. Kidney disease: clinical and morphological classification. Pyelonephritis: definition, etiology, pathogenesis, pathomorphology, complications. Morphological manifestations of chronic renal failure.
14. Kidney disease: clinical and morphological classification. Acute, subacute and chronic glomerulonephritis: etiology, pathogenesis, pathomorphology, outcomes, complications.
15. Necrotic nephrosis: etiology, pathogenesis, stages, pathomorphology, outcomes, complications.
16. Diseases of the esophagus (esophagitis, hernias, tumors): classification, morphological manifestations, complications, outcomes.
17. Acute gastritis: general characteristic, etiology, pathogenesis, morphological manifestations, complications, outcomes.
18. Chronic gastritis: general characteristics, etiology, pathogenesis, morphological manifestations, complications, outcomes.
19. Peptic ulcer of the stomach and duodenum: general characteristics, etiology, pathogenesis, morphogenesis of chronic ulcers. Morphological features of chronic ulcers (at macroscopic levels). Complications of a chronic ulcer. Causes of death.
20. Stomach cancer: characteristics, epidemiology, morphogenesis, histogenesis, classification (based on macro-and microscopy), metastasis, complications, causes of death.
21. Diseases of the liver: general characteristic, classification. Hepatoses (progressive massive liver necrosis, fatty liver): etiology, pathogenesis, morphological manifestations, complications, outcomes.
22. Hepatitis: general characteristic, classification. Morphological features of acute and chronic hepatitis. Morphological features of alcoholic hepatitis.
23. Viral hepatitis: general characteristics, classification, epidemiology, etiology, pathogenesis, clinical and morphological forms, outcomes, complications.
24. Cirrhosis of the liver: definition, general characteristic, classification, etiology, pathogenesis. Morphological features and morphogenesis of postnecrotic, portal and biliary cirrhosis, complications, causes of death.
25. Liver cancer: classification, morphological features, complications.
26. Diseases of the pancreas, pancreatitis, tumors of the pancreas. General characteristics, classification, main pathomorphological manifestations, complications, causes of death.
27. Appendicitis. Definition, general characteristic, etiology, pathogenesis, main pathomorphological manifestations, complications, causes of death.
28. Typhoid fever: general characteristic, etiology, pathogenesis. Pathomorphological characteristics of general and local changes. Complications, causes of death.
29. Dysentery: general characteristic, etiology, pathogenesis. Pathomorphological characteristics of general and local changes. Complications, causes of death.

30. Cholera: general characteristics, etiology, pathogenesis, stages. Morphological manifestations. Specific and nonspecific complications, causes of death.
31. Acute bronchitis: general characteristic, etiology, pathogenesis. Pathomorphological characteristic. Complications, outcomes.
32. Pneumonia: general characteristic, classification. Croupous pneumonia: etiology, pathogenesis, morphogenesis, pathomorphological characteristics. Outcomes. Pulmonary and extrapulmonary complications, causes of death.
33. Pneumonia: general characteristic, classification. Bronchopneumonia and interstitial pneumonia: etiology, pathogenesis, pathomorphological characteristics.
34. Chronic non-specific lung diseases: general characteristics, developmental mechanisms. Chronic bronchitis, bronchiectasis, pulmonary emphysema: etiology, pathogenesis, pathomorphological characteristic. Outcomes, complications.
35. Lung cancer: general characteristics, epidemiology, etiology, pathogenesis. Clinical and anatomical classification, morphological features. Features of metastasis, complications, causes of death.
36. Tuberculosis: general characteristic, epidemiology, etiology, pathogenesis. Primary tuberculosis: definition, ways of infection. Morphological manifestations, characteristics of the primary tuberculosis complex. Variants of the course, outcomes.
37. Tuberculosis: general characteristic, epidemiology, etiology, pathogenesis. Hematogenous tuberculosis: definition, types of hematogenous tuberculosis. Pathomorphological characteristic, outcomes.
1. 38. Tuberculosis: general characteristic, epidemiology, etiology, pathogenesis. Secondary tuberculosis: definition, clinical and morphological forms, pathomorphological characteristics. Complications, causes of death.
38. Influenza: epidemiology, etiology, pathogenesis. Forms of the flu. Pathomorphological characteristics, complications.
39. Measles: epidemiology, etiology, pathogenesis. Pathomorphology, complications.
40. Diphtheria: epidemiology, etiology, pathogenesis. Clinical and morphological classification. Pathomorphological characteristics of local and general changes. Complications, causes of death.
41. Scarlet fever: epidemiology, etiology, pathogenesis. Clinical and morphological classification. The periods of the course of the disease. Pathomorphological characteristics of local and general changes. Complications, causes of death.
42. Meningococcal infection: definition, classification, etiology, pathogenesis. Pathomorphological characteristic. Complications, causes of death.
43. HIV infection: general characteristics, epidemiology, etiology, pathogenesis, periods of course. The concept of opportunistic infections. Causes of death.
44. Diseases of the thyroid gland species, morphological characteristics. Diseases of the parathyroid glands: morphological characteristics.

45. Diseases of the adrenal gland: morphological characteristics. Diseases of the pituitary gland: a clinical and morphological characteristic.
46. Diabetes mellitus. Morphological characteristics of diabetes. Complications of diabetes mellitus (diabetic angiopathy, nephropathy, retinopathy, neuropathy): clinical and morphological characteristics, prognosis. Causes of death in diabetes. Features of diabetes.
47. Diseases of the female reproductive system: endocervicosis, tumors of the cervix and uterine body. Characterization, classification, pathomorphology, complications, causes of death.
48. Diseases of the female reproductive system: tumors and tumor processes of the mammary gland. General characteristics, classification, main pathomorphological manifestations, complications, causes of death.
49. Diseases of the mammary glands: classification, clinical and morphological characteristics.
50. Diseases of the male genital organs: morphological characteristics, outcomes.
51. Sepsis as a special form of infection. Differences from other infections. The concept of a septic focus, the entrance gate (classification, morphology). Clinical and anatomical forms of sepsis (septicemia, septicopyemia, septic (infectious) endocarditis). Morphological characteristics of septicemia.
52. Sepsis as a special form of infection. Differences from other infections. The concept of a septic focus, the entrance gate (classification, morphology). Clinical and anatomical forms of sepsis (septicemia, septicopyemia, septic (infectious) endocarditis). Morphological characteristics of septicopyemia.
53. Sepsis as a special form of infection. Differences from other infections. The concept of a septic focus, the entrance gate (classification, morphology). Clinical and anatomical forms of sepsis (septicemia, septicopyemia, septic (infectious) endocarditis). Morphological characteristics of septic (infectious) endocarditis.
54. Asphyxia of the newborn. Prematurity and portability. Delayed intrauterine fetal development (IUGR). Clinical and morphological characteristics, prognosis.
55. Birth injury: classification, morphological characteristics.
56. Hemolytic and hemorrhagic diseases of the newborn: morphological characteristics.
57. Diseases of the lungs of the perinatal period (pneumopathy): morphological manifestations.
58. Asphyxia (pre- and intrapartum): morphological characteristic. Outcomes. Intrauterine infections: morphological manifestations.
59. Diseases of the musculoskeletal system. Parathyroid osteodystrophy, osteoporosis, Paget's disease, fibrous dysplasia, osteomyelitis, joint diseases, muscle dystrophy, myasthenia gravis.
60. Diseases caused by protozoa and helminths. Rabies. Rickettsioses. Prion infections. 66. Diseases associated with nutrition. Radiation sickness, hospital sickness.

61. Systemic vasculitis: periarteritis nodosa, Takayasu arteritis, temporal (giant cell) arteritis, Wegener's granulomatosis, thromboangiitis obliterans, Kawasaki disease, Shenlein-Genoch purple, Raynaud's disease and syndrome.
62. Cerebrovascular disease. Postresuscitative encephalopathy, brain death syndrome.
63. Diseases of the endocardium and myocardium: cardiomyopathies, endocarditis, myocarditis.
64. Particularly dangerous (convection, quarantine) infections. Syphilis.
65. Occupational diseases: pneumoconiosis, noise disease; diseases caused by exposure to atmospheric pressure

8. TEACHING METHODS

1. Verbal (lecture, explanation, story, conversation, instruction);
2. Visual (observation, illustration, demonstration);
3. Practical (different types of exercises, graphic works, experiment, practice).

The training process uses the following teaching methods:

- explanatory-illustrative or informational-receptive, which provides for the ready presentation of information by the teacher and its assimilation by students;
- reproductive, which is based on the performance of various types of tasks on the sample;
- method of a problem statement - the teacher puts the problem and he solves it, demonstrating the contradictions that characterize the process of cognition, the task of students is to monitor the sequence of presentation, evidence of materiality, the prediction of the next steps of the teacher; the MN is implemented by teaching students to problem situations to ensure successful preliminary preparation for upcoming work in real conditions of practical medical institutions;
- partially search or heuristic, aims at the mastery of the separate elements of search activity, for example: the teacher formulates the problem, students hypothesis;
- research, the essence of which is to organize teacher search creative activity of students by setting new problems and problem tasks.
- methods to ensure the perception and assimilation of knowledge by students (lectures, independent work, instruction, consultation);
- methods of application of knowledge and acquisition and consolidation of skills (practical sessions, assignments);
- methods of verification and assessment of knowledge and skills.

LIST OF MACROPREPARATION	LIST OF MICROPREPARATION
1. Hematoma of the brain 2. Hemopericardium 3. Nutmeg liver	1. Hydropic kidney dystrophy 2. Fatty liver dystrophy (Sudan III) 3. Fatty liver dystrophy (hematoxylin and

4. Aortic thrombosis	eosin)
5. Tromb in the vein	4. Gialinosis of the spleen capsule
6. Pulmonary artery thromboembolism	5. Amyloidosis of the spleen
7. Purulent leptomeningitis	6. Brown lung induration (Perls reaction)
8. Hemorrhagic lung infarction	7. Haemoragic infarct of a lung
9. Infarction of the spleen	8. Nutmeg liver
10. Gangrene of the foot	9. Point hemorrhages in the brain
11. Gialinosis of the spleen capsule	10. Granulation tissue
12. Amyloidosis of the kidney	11. Purulent leptomeningitis
13. Obesity of the heart	12. Tuberculous granuloma
14. Fibrinous pericarditis	13. Papilloma
15. Putride endometritis	14. Adenocarcinoma
16. Medullar swelling of the Peyer's patches with abdominal typhus	15. Cavernous haemangioma of liver
17. Portal liver chirrosis	16. Squamous cell carcinoma with keratinization
18. Echinococcus of the liver	17. Lymphogranulomatosis
19. Chronic ulcer of the stomash	18. Melanoma
20. Primary tuberculous complex	19. Polimorphous-cell sarcoma
21. Fibrocavernous tuberculosis	20. Leukemic infiltration of liver
22. Atherosclerosis of aorta	21. Atherosclerotic plaque
23. Polyp of the uterus	22. Warty endocarditis
24. Cancer of mammary glands	23. Miocardial infarction
25. Central lung cancer	24. Subacut glomerulonephritis
26. Sarcoma of the thigh	25. Kidney in arterial hypertension
27. Mushroom-like cancer of stomach	26. Liver cirrhosis (van Gizon)
28. Atherosclerotic nefrochirrosis	27. Crupous pneumonia (gray hepatisation)
29. Postinfarctional cardiosclerosis	28. Deep caries
30. Fibrinous colitis	29. Dentine at middle caries
31. Abscess of the liver	30. Chronic sialoadenitis
32. Relapsing warty endocarditis	31. Purulent pulpitis
33. Upper jaw sarcoma	32. Radicular cist
34. Pleomorphic adenoma of salivary glands	33. Osteomyelitis
35. Dental caries	34. Ameloblastoma
36. Cistgranuloma	35. Cementoma
37. Ameloblastoma of jaw bone	36. Fibrous epulis
38. Fibromyoma of the uterus	37. Angiomatous epulis
39. Spleen in chronic myeloid leukemia	38. Giant-cell epulis
40. Hypertrophy of the heart	39. Pleomorphic adenoma of salivary glands
	40. Wartin's tumor

9. METHODS OF CONTROL

9.1. Current control is performed based on the control of theoretical knowledge, skills and abilities in practical classes. Independent study students are assessed in practical classes, and is an integral part of the final grade of the student. Current control is performed during the training sessions and aims at checking the assimilation of students learning the material. Forms of current control are:

- a) test tasks with a choice of one correct answer, with the definition of the correct sequence of actions, with determination of the conformity, defining the specific portion of the photo or diagram ("detection");
- b) individual oral questioning, interview;
- c) the solution of typical situational tasks;
- g) identification of pathogens and carriers of pathogens of parasitic diseases in the photographs, macro - and micropreparats;
- d) control of practical skills;
- e) the typical problems of Pathomorphology.

9.2. Form of final control of education is carried out in the form of the exam (written, oral) (second semester).

The semester examination is a form of final control of mastering by the student the theoretical and practical material of the discipline. The final control (exam) is held on the last control class.

To FC allowed students who attended all included in the curriculum for the discipline of classroom training and the study module scored points not less than the minimum (**72 points**). A student who for good or without good reason, had the missing classes, you are allowed to work on academic debt to a fixed term.

The form of the final control should be standardized and include control of theoretical and practical training.

10. SCHEME OF CALCULATION AND DISTRIBUTION OF POINTS RECEIVED BY APPLICANTS FOR HIGHER EDUCATION.

Evaluation of current educational activities. During the assessment of mastering each topic for the current educational activity of the student scores are set on a 4-point (national) assessment scale. This takes into account all types of work provided by the discipline program. The student must receive a score on each topic. Scores on the traditional scale are converted into points. The final assessment of the current academic activity is the arithmetic mean (the sum of scores for each lesson is divided by the number of lessons per semester) and translated into points according to **Table 1**.

The maximum number of points that a student can collect for current educational activity during semester in order to be admitted to the exam is **120 points**.

The minimum number of points that a student can collect for current

educational activity during semester in order to be admitted to the exam is **72 points**.

Calculating of the number of points is based on obtained marks of student according to traditional scale while learning subject during the semester, by calculating the arithmetic mean (AM) that is rounded to two signs after comma.

Table 1. Conversion of the average score for the current activity into a multi-scale scale (for disciplines completed by credit)

4- point scale	200- point scale	4- point scale	200- point scale	4- point scale	200- point scale	4- point scale	200- point scale
5	200	4,47	179	3,94	158	3,42	137
4,97	199	4,45	178	3,92	157	3,4	136
4,95	198	4,42	177	3,89	156	3,37	135
4,92	197	4,4	176	3,87	155	3,35	134
4,9	196	4,37	175	3,84	154	3,32	133
4,87	195	4,35	174	3,82	153	3,3	132
4,85	194	4,32	173	3,79	152	3,27	131
4,82	193	4,3	172	3,77	151	3,25	130
4,8	192	4,27	171	3,74	150	3,22	129
4,77	191	4,24	170	3,72	149	3,2	128
4,75	190	4,22	169	3,7	148	3,17	127
4,72	189	4,19	168	3,67	147	3,15	126
4,7	188	4,17	167	3,65	146	3,12	125
4,67	187	4,14	166	3,62	145	3,1	124
4,65	186	4,12	165	3,6	144	3,07	123
4,62	185	4,09	164	3,57	143	3,05	122
4,6	184	4,07	163	3,55	142	3,02	121
4,57	183	4,04	162	3,52	141	3	120
4,55	182	4,02	161	3,5	140	<3	Not enough
4,52	181	3,99	160	3,47	139		
4,5	180	3,97	159	3,45	138		

Evaluation of individual student tasks. Points for individual tasks are accrued only if they are successfully completed and defended. The number of points awarded for different types of individual tasks depends on their scope and significance, but not more than 10-12 points. They are added to the amount of points gained by the student in the classroom during the current educational activity. In no case may the total amount for current activities exceed 120 points.

Evaluation of independent work of students. Independent work of students, which is provided by the topic of the lesson together with the classroom work, is evaluated during the current control of the topic in the relevant lesson. Assimilation of topics that are submitted only for independent work is checked during the final module control.

Evaluation of final control.

The maximum number of points that a student can score during the exam is **80 points**.

The final control is considered credited if the student scored at least 60% of the maximum amount of points (for a 200-point scale - at least **50 points**).

Determining the number of points that a student scored in the discipline: the number of points that a student scored in the discipline is defined as the sum of points for the current academic activity and for the final control (exam).

Conversion of the number of points from the discipline into grades on the ECTS scale and on a four-point (traditional) scale

Scores from disciplines are independently converted into both the ECTS scale and the national assessment scale, but not vice versa. **Table 2.**

Table 2. Conversion of the average score for the current activity into a multi-point scale (for disciplines completed by exam)

4- point scale	120- point scale	4- point scale	120- point scale	4- point scale	120- point scale	4- point scale	120- point scale
5	120	4,45	107	3,91	94	3,37	81
4,95	119	4,41	106	3,87	93	3,33	80
4,91	118	4,37	105	3,83	92	3,29	79
4,87	117	4,33	104	3,79	91	3,25	78
4,83	116	4,29	103	3,74	90	3,2	77
4,79	115	4,25	102	3,7	89	3,16	76
4,75	114	4,2	101	3,66	88	3,12	75
4,7	113	4,16	100	3,62	87	3,08	74
4,66	112	4,12	99	3,58	86	3,04	73
4,62	111	4,08	98	3,54	85	3	72
4,58	110	4,04	97	3,49	84	<3	Not enough
4,54	109	3,99	96	3,45	83		
4,5	108	3,95	95	3,41	82		

Criteria for establishing the assessment on the traditional 4-point and ECTS scale after passing the exam:

Points by the multi-point (200) scale	Grade by the 4-point scale (National assessment scale)	Score ECTS
180-200	5	A
160-179	4	B
150-159		C
130-149		D
120-129		E
50-119	2	FX
0-49		F

The criteria for the evaluation.

During assessment of the assimilation of each topic for current educational activities of the applicant higher education grades are given on a national scale (traditional) scale with regard to the approved evaluation criteria:

- "excellent" (5)- student flawlessly learned the theoretical material of the topic, demonstrates deep and comprehensive knowledge of the relevant topics, the main provisions of scientific sources and recommended literature, to think logically and builds a response, freely use the acquired theoretical knowledge in the analysis of practical material, expresses his attitude to certain issues, demonstrates a high level of mastering of practical skills;
- "good" rating (4) - the student has well learned the theoretical material of the lesson has the basic aspects of primary sources and recommended literature, convincingly expounds it; possesses practical skills and expressed their concerns about certain problems, but it is assumed certain inaccuracies and errors in the logic of presentation of theoretical content or performing practical skills.
- "satisfactory" (3) - the student has basically mastered the theoretical knowledge training topics, versed in the primary sources and recommended literature, but

unconvincing answers, confuses, additional issues are the student's uncertainty or lack of stable knowledge; answering questions of a practical nature, reveals inaccuracies in knowledge, does not know how to evaluate facts and phenomena linked with the future activity, allows for errors in the performance of practical skills; - "*unsatisfactory*" (2) the student has not mastered the learning material of the topic, knows scientific facts, definitions, is almost oriented in the primary sources and recommended literature, no scientific thinking, practical skills are not formed.

Exhibited on the traditional scale are converted in points. The minimum number of points that need to recruit a student for current educational activity per semester for admission to the exam is 120 points.

11. METODICAL SUPPLY

1. Work program of the discipline.
2. Calendar-thematic plans of lectures and practical classes.
3. Examples of test tasks for classes.
4. Test tasks for the exam.

12. RECOMMENDED LITERATURE

Main:

1. Harrison's Manual of medicine .- 17th ed.- /Anthony S. Fauci, Eugene Braunwald, Dennis L. Kasper, and others.- New York, Chicago, San Francisco, London, Madrid, Mexico City, New Delhi, Sydney, Toronto.- 2008.
2. Robbins Pathologic basic of disease. - 6th ed.-/ Ramzi S. Cotnar, Vinay Kumar, Tucker Collins. – Philadelphia, London, Toronto, Montreal, Sydney, Tokyo. – 1999.
3. Ramzi S. Kotran, Vinay Kumar, Stanley S. Robbins. Robbins Pathologic Basis of Disease, W.B. Saunders Company, USA, 1994
4. Anderson's Pathology // Edited by Jonh M. Kissane. The C.V. Mosby Company. - Toronto - Philadelphia, 1990.

Additional :

1. A.K. Zagorulko. Short lectures on pathology (pathological anatomy). - Simferopol: 2 ed. CSMU, 2002.
2. Gozhenko A.I., Gurcalova I.P., General and clinical pathophysiology/ Study guide for medical students and practitioners. – Odesa, 2003.
3. Thomas C. Macropathology. - B.C. Decker Inc. - Toronto - Philadelphia, 1990.
4. Thomas C. Histopathology. - B.C. Decker Inc. - Toronto - Philadelphia, 1989.

Approved:



В.о.Ректора /Acting Rector

Iryna DOROSHENKO