

**PRIVATE HIGHER EDUCATIONAL ESTABLISHMENT
«INTERNATIONAL ACADEMY OF ECOLOGY AND MEDICINE»**

Department of fundamental disciplines with a course of pharmacology

**SYLLABUS OF THE EDUCATIONAL
DISCIPLINE**

" Pathomorphology "


LEVEL OF HIGHER EDUCATION The second (master's) level

DEGREE OF HIGHER EDUCATION Master

AREA OF KNOWLEDGE 22 "Health care"

SPECIALTY 221 "Dentistry"

Reviewed and approved
at the meeting of the Department of fundamental
disciplines with a course of pharmacology

Protocol № 1 of « 01 » 09 2020
Head of the department Doctor of Biological
Sciences, associate professor
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1. General information	
Subject	Pathomorphology
Lector	Ph.D. I.Belichenko
Teacher's contact phone number	098 538-10-90
Teacher's e-mail	igorbelicenko64@gmail.com
Discipline format	Normative discipline.
The volume of the discipline	180 hours
Link to the distance learning site	maem.kiev.ua
Consultations	Tuesday of each week 16.00-17.30
2. Annotation to the course	
<p>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.</p> <p>Pathomorphology 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.</p>	<p>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.</p>
3. Purpose and objectives of the course	
<p>The main tasks of studying the discipline "Pathomorphology" are:</p> <ul style="list-style-type: none"> • 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; 	<p>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.</p>

• acquisition of skills of clinical and anatomical analysis, synthetic generalization of diagnostic signs of diseases and their correct interpretation in causal relations.

4. Competencies and learning outcomes

As a result of learning of of the discipline student have to

know:

1. Pathomorphological nomenclature
2. Determination of the initial mechanisms of cell and tissue damage
3. Pathomorphology of shocks together with differentiation of the causes of all types of organ failure.
4. Etiology of hemodynamic disorders, regressive and progressive metamorphoses
5. Identification of specific pathology of organs, macro- and microscopic picture and clinical significance of morphological changes in organs
6. Description of the consequences of the development of pathological changes in topographically neighboring organs
7. List of external, internal, altered and permanent factors of the disease.

be able 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.

In accordance with the requirements of the standard, the discipline provides students with the acquisition of competence:

- *integral*: - Ability to solve typical and complex specialized tasks and practical problems in professional activities in the field of health care, or in the learning process, which involves microbiological research and / or implementation of an innovation and is characterized by complexity and uncertainty of conditions and requirements.
- *common*: - Ability to apply knowledge in practical situations. Ability to effectuate selfregulation, to have a healthy lifestyle, ability to adapt and act in a new situation. Ability to choose a communication strategy; ability to work in a team; interpersonal interaction. Skills in the use of information and communication technologies. Ability to abstract thinking, analysis and synthesis, the ability to learn and to be trained modernly. Definiteness and persistence in terms of tasks and responsibilities. Ability to act socially responsibly and with public awareness. The desire to preserve the environment. Universal competencies that do not depend on the subject area, but are important for the successful further professional and social activities of the applicant in various fields and for his personal development.
- *special* (professional, subjective): - Ability to evaluate the results of laboratory and instrumental research. Ability to carry out sanitary and hygienic preventive measures. Ability to plan preventive and anti-epidemic measures for infectious diseases. Ability to analyze of the state, social, economic and medical information. Ability to assess the impact of socio-economic and biological determinants on the health of the individual, family, population. Ability to apply scientifically substantiated psychological methods of effective work with colleagues, medical staff, patients and their relatives, readiness to interact with other people. Awareness of the individual in the culture of other peoples.

Matrix of competencies

№	Competence	Knowledge	Skills	Communication	Autonomy 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 decision evaluation autopsy results in vivo diagnosis

5. Organization of course training

The volume of the course

Type of lesson	<i>Total amount of hours 180</i>
Lectures	30
Practical classes	80
Independent work	70
<i>Course signs</i>	
Semesters: the 4th, the 5th	Specialty 221 "Dentistry" Course (year of study) : the 2nd, the 3rd Normative discipline

Course thematics

The program of the discipline is structured into 2 modules:
 Module I. General pathomorphology.
 Module II. Special pathomorphology.

THEMATIC PLAN OF LECTURES

The 2nd course. The IVth semester

№	TOPIC	Hours
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
2	Cellular dystrophies. Pathomorphology of accumulation of complex proteins (hyalinosis) and lipids. Pathomorphology of accumulation of products of disturbed metabolism.	2
3	Inflammation: causes, morphogenesis. Pathomorphology of exudative inflammation.	2
4	Proliferative (productive) inflammation. Pathomorphology of proliferative inflammation.	2
5	Regeneration. Compensatory-adaptive processes.	2
6	Molecular and pathomorphological basis of immune response. Pathology of immune processes: hypersensitivity reactions.	2
7	Pathology of immune processes: amyloidosis, immunodeficiency. Autoimmune diseases.	2
8	Oncogenesis. Nomenclature and principles of tumor classification.	2
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.	2
10	Epithelium origin tumors. Malignant and benign organospecific epithelium origin tumors. Peculiarities their development, metastasis, histological forms.	2
Total:		20

The 3rd course. The Vth semester

№	TOPIC	Hours
Module II. Special pathomorphology.		
1.	Atherosclerosis and arteriosclerosis. Hypertension and arteriosclerosis.	2
2.	Hypertension and symptomatic hypertension. Coronary heart disease.	2
3.	Systemic connective tissue diseases with autoimmunization. Acquired heart defects.	2
4.	Diseases of the dental-maxillary system and oral organs.	2
5.	Diseases of the esophagus, stomach and intestines.	2
Total:		10

THEMATIC PLAN OF PRACTICAL CLASSES

The 2nd course. The IVth semester

№	TOPIC	Hours
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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
2	Morphological changes of extracellular matrix (stroma) in response to injury. (Stromal-vascular degenerations). Morphology of complex proteins (hyalinosis) and lipids accumulation.	2
3	Morphological changes of cells in response to stress and toxin induced injury (parenchymatous degenerations / cells degenerations): protein, fatty and carbohydrate intracellular accumulation.	2
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.	2
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.	2
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.	2
7	Disturbance of hemostasis: hemorrhagic syndrome, thrombosis, disseminated intravascular coagulation. Embolism. Thromboembolism of lung artery.	2
8	Inflammation: reasons, morphogenesis. Morphology of exudative inflammation.	2
9	Proliferative (productive) inflammation: with formation of pointed condyloma, productive inflammation caused by parasites, interstitial inflammation, granulomatous inflammation.	2
10	Molecular and pathomorphological basis of immune response. Pathology of immune processes: hypersensitivity reactions.	2
11	Pathology of immune processes: amyloidosis. Autoimmune diseases.	2
12	Regeneration. Structural basis of visceral organs and cells physiological adaptation. Morphology of cells accommodation processes. Adaptation and compensation processes.	2
13	Oncogenesis. Anatomical and microscopical features and kinds of tumor growth. Morphological characteristic of malignant tumors development basis stages. Nomenclature of tumors.	2
14	Epithelium origin tumors. Malignant and benign organospecific epithelium origin tumors. Peculiarities their development, metastasis, histological forms.	2
15	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.	
16	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.	2
17	Haemopoetic and lymph tissue origin tumors.	2
18	Anemia. Thrombocytopenia and thrombocytopeny. Coagulopathy.	2
19	Practical skills from module 1 "General pathomorphology".	2
20	Final modular control 1	2
	Total:	40

The 3rd course. The Vth semester

№	TOPIC	Hours
	Module II. Special pathomorphology.	
1	Arteriosclerosis. Atherosclerosis.	2
2	Hypertension and hypertension. Coronary heart disease.	2
3	Coronary heart disease.	2
4	Systemic connective tissue diseases with autoimmunization.	2
5	Diseases of the nervous system.	2
6	Acute and chronic respiratory diseases.	2
7	Diseases of the gastrointestinal tract.	2
8	Diseases of the liver, biliary system and pancreas.	2
9	Kidney disease.	2
10	Diseases of the male genitalia.	2
11	Diseases of the female genital organs.	2
12	Prenatal and perinatal pathology.	2
13	Diseases of the endocrine system.	2
14	Primary tuberculosis. Hematogenous and secondary tuberculosis.	2
15	Viral infections. HIV infection.	2
16	Rabies. Rickettsiosis. Prion infections.	2
17	Bacterial intestinal diseases.	2
18	Sepsis. Quarantine infections. Syphilis.	2
19	Salivary gland diseases - inflammatory diseases, autoimmune diseases, salivary stones, tumors and tumor-like diseases.	2
20	Final test control.	2
	Total:	40

THEMATIC PLAN OF INDEPENDENT WORK OF STUDENTS (IWS)

The 2nd course. The IVth semester

№	MODULE 1	Hours	Type of control
	TOPIC		
1	Preparation for practical classes - theoretical preparation and working off the practical skills.	20	Current control in practical classes
2	Elaboration of topics that are not included in the lesson plan:		
2.1.	Violation of water-salt balance.	2	Final modular control
2.2.	Fibrous dysplasia. Parathyroid osteodystrophy. Eosinophilic granuloma. Osteomyelitis. Osteopetrosis. Paget's disease. Muscular dystrophies. Myasthenia.	2	--
2.3.	Pathomorphological changes in diseases related to nutrition. Radiation sickness. Occupational diseases.	2	--
3.	Preparation for the final modular control	4	<i>Final modular control</i>
	Total	30	

The 3rd course. The Vth semester

№	MODULE 2	Hours	Type of control
	TOPIC		
1.	Preparation for practical classes - theoretical preparation and working off the practical skills.	30	Current control in practical classes
2	Elaboration of topics that are not included in the lesson plan:		
2.1.	Systemic vasculitis.	2	Final modular control
2.2.	Cerebrovascular disease. Alzheimer's disease. Multiple sclerosis. Amyotrophic lateral sclerosis.	2	--
2.4.	Diseases caused by protozoa, helminths. Mycoses.	2	--
3	Preparation for the final modular control	4	<i>Final modular control</i>
	Total	40	

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. Muroid 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
85. Features of tumor growth in childhood. Dysonotogenic tumors. Teratomas and teratoblastomas.
86. General characteristics, definition of the concept, classification of leukemias (hemoblastosis).
87. General characteristics, classification, morphological manifestations, stages of acute leukemia (acute undifferentiated, acute myeloblastic, acute lymphoblastic leukemia). Causes of death in acute leukemia.
88. General characteristics, classification, morphological manifestations of chronic leukemia (chronic myeloid leukemia, chronic lymphatic leukemia).
89. General characteristics, morphological manifestations of paraproteinemic leukemias. Myeloid Disease.
90. Anemia: general characteristics, classification, morphological manifestations.
91. Anemia due to violation of hematopoiesis: general characteristics, classification, morphological manifestations.
92. Lymphomas: definition of concept, etiology, classification, morphological manifestations. Main morphological types of non-Hodgkin's lymphomas.
93. Hodgkin's disease (lymphogranulomatosis): definition, classification, morphological manifestations.

Module II. Special pathomorphology.

94. Atherosclerosis: reasons, pathogenesis, morphogenesis, forms (on the examples of atherosclerosis of arteries of cerebrum, kidneys, extremities, intestine), consequences.
95. Hypertensive illness (difference from symptomatic blood pressure high): risk factors, stages of illness, morphological description. Prophylactic measures in the fight against hypertensive illness.
96. Sharp ischemia heart trouble: determination of concept, risk factors, modern methods of early diagnostics of heart attack of myocardium, complication, reason of death.
97. Chronic ischemic heart trouble: morphological description, consequences.

98. Rheumatic illnesses: reasons, pathogenesis, morphological description of rheumatic endocarditises, myocarditises. Acquired lacks of heart: stenosis and insufficiency of the left atryoventrykulis opening of heart. Concept about compensated and dekomensation heart-diseases, morphological description.
99. Bronchopneumonia: reasons, pathogenesis, morphology, complications, reasons of death.
100. Croupous pneumonia: reasons, pathogenesis, morphology, complications, reasons of death.
101. Ulcerous illness: reasons, pathogenesis, and morphological description of sharp and chronic gastric, complication, reason of death ulcer.
102. Viral epidemic hepatitis: reasons, pathogenesis, morphological displays of separate forms of motion of hepatitis, complication, reason of death.
103. Alcoholic hepatitis: pathogenesis, morphological displays, consequences.
104. Cirrhosis of liver: prospects are a reason, morphology, complications, reasons of death.
105. Glomerulonephritis: types of reason, morphology, complications, reasons of death. Value of punkshyon biopsy in determination of prognosis of disease.
106. Amyloid nefrosis: reason, pathogenesis, morphology, methods of exposure to the amyloidal, complications, reasons of death.
107. Sharp kidney insufficiency: reasons, pathogenesis, morphology, complications, reasons of death.
108. Prostatitis: reasons, pathogenesis, morphology, complications.
109. Tumors and tumor-like processes of the oral cavity organs. Odontogenous tumors: reason, morphology, complications.
110. Diseases of salivary glands: reason, morphology, complications.
111. Nonodontogenic tumors : reason, morphology, complications.
112. Caries and non-carious disorders of a tooth hard tissues, pulpitis: reason, morphology, complications.
113. Periostitis, osteomyelitis, odontogenic sepsis: reasons, morphology, complications, reasons of death.
114. Parodontosis, gingivitis, periodontitis, idiopathic progressive parodontolysis: reason, morphology, complications.
115. Cheilitis, glossitis, stomatitis: reason, morphology, complications.
116. Syphilis: reasons, pathogenesis, periods of development, morphology, displays in an oral cavity, consequences.
117. Tuberculosis: reasons, pathogenesis, morphological displays of primary tubercular complex, his consequence. Types of tuberculosis, morphological description of separate forms, complication, reason of death.
118. Influenza: reasons, morphology, complications, reasons of death.
119. Diphtheria: reason, morphology, complications, reasons of death.
120. Intestinal bacterial infections (dysentery, typhoid): reason, morphology, complications, reasons of death.
121. Saccharine diabetes: reason, morphology, displays in an oral cavity, complications, reasons of death.
122. Akromegalia: reason, pathogenesis morphological displays.
123. Goitre: reason, pathogenesis, morphology, consequences.

6. Course evaluation system

<p>General course evaluation system</p>	<p>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:</p>
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- 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 genetics and medical genetics.
- Grades on the national scale ("excellent" - 5, "good" - 4, "satisfactory" - 3, "unsatisfactory" - 2), received by students, are displayed in the journals of attendance and academic group performance.

Final control

The final control is the form of a differentiated credit at the end of the 1st semester and an exam at the end of the 2nd semester upon completion of the course of medical biology.

The semester exam is a form of final control of mastering by the student of theoretical and practical material on academic discipline. The final control (exam) is carried out at the last control lesson.

Students are admitted to the FC who have attended all the classes provided by the curriculum in the discipline and while studying the module scored the number of points not less than the minimum (72 points). A student who, for good or bad reasons, has missed classes, is allowed to rework academic debt for a certain period of time.

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 2.

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

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.

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 (Table1) and for the final control (diff.credit, exam) (Table 3).

Table 3. Scale of assessment of differentiated (exam) credit:

Traditional scale	Points
«5»	70-80
«4»	60-69
«3»	50-59

Requirements for written work

The final written work is performed in the form of a test.

Practical classes

Classroom work

The 2nd course. The 4th semester

Module I. General pathomorphology.

Topics 1-18:

Classroom work - score from 2 to 5 for each topic.

Topic 19: Practical skills from module 1 "General pathomorphology"- score from 2 to 5.

Topic 20: Diff.credit (Semester control): practical training, theoretical training.

Final module control is evaluated from 50 to 80 points and consists of:
 Test control - 40 tests = 40 points (1 point for the correct answer to 1 test).
 Answer to 2 theoretical questions of 20 points for each = 40 points. Amount: 80.
 Scale of assessment:

Traditional scale	Points
«5»	70-80
«4»	60-69
«3»	50-59

Amount: minimum $72 + 50 = 122$, maximum $120 + 80 = 200$

The 3rd course. The 5th semester.

Module II. Special pathomorphology.

Topics 1-19:

Classroom work - score from 2 to 5 for each topic.

Topic 20: Final test control. Written test control consists of 40 tasks.

Evaluation criteria

Score	«3»	«4»	«5»
Number of correct answers	20-29	30-34	35-40

At the end of the course there is an exam.

The structure of the examination ticket to Microbiology, virology and immunology

1. Theoretical question
2. Theoretical question
3. Theoretical question
4. Practical skills

**THE CRITERIA FOR EVALUATION
 PRACTICAL SKILLS AND THEORETICAL QUESTIONS**

Number of practical skills	«5»	«4»	«3»	The answer is a card to the practical skills	For each answer to the practical skill student receives from 10 to 16 points: «5» - 16 points; «4» - 13 points; «3» - 10 points.
1	16	13	10		
Number of Theoretical question	«5»	«4»	«3»	Oral answer the card on theoretical questions	For each answer to the practical skill student receives from 10 to 16 points: «5» - 16 points; «4» - 13 points; «3» - 10 points.
1	16	13	10		
2	16	13	10		
3	16	13	10		
The sum of points	80	65	50		

Students who have completed all types of work provided by the curriculum and scored the number of points for the current success not less than the minimum (72) are admitted to the exam. The total grade for the module and the discipline consists of a total grade for the activities in the current classes and the final control of student knowledge. Current activity is estimated from 72 to 120 points. Thus, the minimum number of points per module should be: $72 + 50 = 122$ points. Maximum number: $120 + 80 = 200$ points.

<p>Rating scale:</p> <table> <tr> <td>National scale</td> <td>Points scale</td> </tr> <tr> <td>«5»</td> <td>70-80</td> </tr> <tr> <td>«4»</td> <td>60-69</td> </tr> <tr> <td>«3»</td> <td>50-59</td> </tr> </table>		National scale	Points scale	«5»	70-80	«4»	60-69	«3»	50-59
National scale	Points scale								
«5»	70-80								
«4»	60-69								
«3»	50-59								
<p>Circumstance of admission to the final control</p>									
<p>1. Semester control at the end of the 1st semester is provided in the form of a differential credit. (Table 2) Provides a final score on a 120-point scale as the sum of scores for the current control of knowledge (oral examination, written survey, tests, verification of identification of micropreparations, abstracts), the results of 2 content modules.</p> <p>2. Students are allowed to take the differentiated credit, exam only if there is no debt for the implementation of the curriculum.</p>									
<p align="center">7. Course policy</p>									
<p>The organization of the educational process is carried out with the use of the European Credit Transfer System (ECTS) to assess student performance. The points gained in the current survey, independent work and points of the final control are credited. This must take into account the student's presence in class and his activity during practical work. Inadmissible: absences and late classes; use of a mobile phone, tablet or other mobile devices during the lesson (except for the cases provided by the curriculum and methodical recommendations of the teacher); copying and plagiarism; untimely performance of the task, the presence of unsatisfactory grades for 50% or more of the submitted theoretical and practical material.</p>									
<p align="center">8. RECOMMENDED LITERATURE</p>									
<p>Basic:</p> <ol style="list-style-type: none"> 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. Robbins Pathologic basic of disease. - 6th ed.-/ Ramzi S. Cotnar, Vinay Kumar, Tucker Collins. – Philadelphia, London, Toronto, Montreal, Sydney, Tokyo. – 1999. Ramzi S. Kotran, Vinay Kumar, Stanley S. Robbins. Robbins Pathologic Basis of Disease, W.B. Saunders Company, USA, 1994 Anderson's Pathology // Edited by Jonh M. Kissane. The C.V. Mosby Company. - Toronto - Philadelphia, 1990. 	<p>Additional:</p> <ol style="list-style-type: none"> A.K. Zagorulko. Short lectures on pathology (pathological anatomy). - Simferopol: 2 ed. CSMU, 2002. Gozhenko A.I., Gurcalova I.P., General and clinical pathophysiology/ Study guide for medical students and practitioners. – Odesa, 2003. Thomas C. Macropathology. - B.C. Decker Inc. - Toronto - Philadelphia, 1990. Thomas C. Histopathology. - B.C. Decker Inc. - Toronto - Philadelphia, 1989. 								

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