

Ministry of Education and Science of Ukraine
V. N. Karazin Kharkiv National University

PATHOMORPHOLOGY

Methodical guidance
for the 3rd academic year students of the School of Medicine

Electronic resource

Kharkiv – 2025

Reviewers:

I. V. Sorokina – PhD, Sc.D., MD, Professor of the Pathological Anatomy Department of the Kharkiv National Medical University, Kharkiv, Ukraine;

S. O. Sherstiuk – PhD, Sc.D., MD, Professor, Head of the Department of Human Anatomy and Physiology, School of Medicine, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine.

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Methodical guidance contains basic recommendations for preparing third-year medical students for classes, tests and exams in the discipline “Pathomorphology”. Developed for applicants for higher medical education in higher medical educational institutions of Ukraine III-IV levels of accreditation: specialty «222 Medicine», field of knowledge «22 Health Care», professional qualification «Second (Master of Medicine)», qualification «Doctor».

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GENERAL DESCRIPTION OF THE «PATHOMORPHOLOGY» DISCIPLINE

Discipline "Pathomorphology" occupies a very important place in the educational program of medical faculty, as she studies structural bases of illness. The theoretical and scientific value of pathological morphology most brightly opens up at the study of general conformities to law of development of pathologies of cage, pathological processes and illnesses, id est general pathology of man.

The aim of educational discipline "Pathomorphology" is study of structural bases of illnesses, their etiology, pathogeny for the comprehension of theoretical bases of medicine, more deep knowledge of clinical displays of illnesses, and also to provide fundamental preparation, acquisition of practical skills and use of gain knowledge in everyday work of doctor of general profile.

According to the National Qualifications Framework and the educational and professional program of the V. N. Karazin Kharkiv National University School of Medicine, Pathomorphology provides graduates with following **competencies**:

General:

- ✓ Ability for abstract thinking, analysis and synthesis; ability to learn and master modern knowledge (**3K01**).
- ✓ Ability to apply knowledge in practical situations (**3K02**).
- ✓ Knowledge and understanding of the subject area and understanding of professional activity (**3K03**).
- ✓ Ability to adapt and act in a new situation (**3K04**).
- ✓ Ability to make informed decisions; team work; interpersonal skills (**3K05**).
- ✓ Skills in the use of information and communication technologies; ability to search, process and analyze information from various sources (**3K07**).
- ✓ Definiteness and persistence in terms of tasks and responsibilities (**3K08**).

- ✓ Ability to act socially responsible and consciously (**3K09**).

Professional:

- ✓ Ability to determine the required list of laboratory and instrumental studies and evaluate their results (**ΦK2**).
- ✓ Ability to determine the principles and characteristic of the treatment of diseases (**ΦK5**).
- ✓ Skills to perform medical manipulations (**ΦK9**).
- ✓ Ability to keep medical records (**ΦK14**).
- ✓ Ability to assess the impact of the environmental, socio-economic and biological determinants on the health of the individual, family, population (**ΦK16**).

According to the National Qualifications Framework and the educational and professional program of V. N. Karazin Kharkiv National University School of Medicine, applicants who have completed the educational course «Pathomorphology», must to:

- ✓ Have general and special fundamental and professionally-oriented knowledge, skills, abilities, competencies necessary to perform typical professional tasks related to activities in the medical field in the relevant position (**ΠPH 1**).
- ✓ Have knowledge of human psychophysiological characteristics, human health, health support, disease prevention, human treatment, public health (**ΠPH 2**).
- ✓ Apply the acquired knowledge, skills and understanding to solve typical problems of physician's activities, the scope applying of which is provided by the lists of syndromes and symptoms, diseases, emergencies, laboratory and instrumental studies, medical manipulations (**ΠPH 3**).
- ✓ Determine the tactics of physiological childbirth and the postpartum period (**ΠPH 14**).
- ✓ Apply the acquired knowledge about the existing health care system to optimize their own professional activities and participate in solving practical problems of the healthcare domain (**ΠPH 20**).

✓ Adhere to the code of ethics of the physician, which ensures the formation of a specialist with appropriate personal qualities (**ИПХ 21**).

TEACHING METHODS

Several classical and modern pedagogical approaches are used in teaching the discipline:

1. «Teacher-centered approach» or «direct instruction model» — conveying information to higher education students through lectures and instruction on learning.
2. «Student-centered approach» and «personalized learning», namely students considerable freedom and independence in choosing topics for individual tasks and expressing their own opinions during its implementation.
3. «High-tech approach», namely the use of Web technologies to support access of students to the materials of the discipline, communication with the teacher and communication with other participants in the educational process.
4. Differentiated approach to methods of memorizing information, for in process of studying the material, students use both passive (reading and taking MCQ tests, viewing the presentations and videos) and active (answering the provided questions for self-check or control tests with written answers) methods of memorization.

THEMATIC PLAN OF THE DISCIPLINE

The discipline program is structured into two sections:

Section I. General pathomorphology.

Section II. Systemic pathomorphology.

The total amount of credits and hours of the «Pathomorphology» discipline

Structural sections of the discipline	Number of hours				ECTS credits	Year and semester
	Lectures	Practical	ISW	Total		
1. General pathomorphology	20	34	36	90	3	3 year, V semester
2. Systemic pathomorphology	18	36	36	90	3	3 year, V, VI semesters

Notes: 1 ECTS credit – 30 study hours; classroom load – 60%; ISW – 40%; average weekly load – 6 hours per week (including ISW); average classroom weekly load – 3.6 hours per week.

SECTION I

General Pathomorphology V semester

CLASS №1,2. Subject and tasks of Pathomorphology. The main stages of the Pathomorphology development. Methods of Pathomorphologyiological research. Basic concepts of Pathomorphology. Cell pathology.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Subject and sections of Pathomorphology.
2. Goals and tasks of Pathomorphology.
3. Clinical Pathomorphology, its purpose and tasks.
4. Methods of Pathomorphology.
5. Experimental modeling of diseases.
6. The imperfections of experimental modeling.
7. The main historical stages of the development of Pathomorphology.
8. Basic concepts of nosology: health, illness, pathological condition, pathological process, pathological reaction

9. Cellular adaptation.Types.Morphology.
10. Necrosis. Definition.Types.Morphology.
11. Apoptosis: causes, mechanism and outcome.
12. Causes of cell injury.
13. Mechanisms of cell injury.
14. Fat accumulation.Definition.Morphology.
15. Protein accumulation. Definition.Morphology.
16. Calcium accumulation. Definition.Morphology.
17. Iron accumulation. Definition.Morphology.
18. Secondary amyloidosis. Definition.Morphology.

Assignment questions:

1. Cellular adaptation. Types. Morphology.
2. Death of cell. Forms. Determination.
3. Coagulative necrosis. Determination. Morphology.
4. Colliquative necrosis. Determination. Morphology.
5. Steatonecrosis. Determination. Morphology.
6. Caseous necrosis. Determination. Morphology.
7. Fibrous necrosis. Determination. Morphology.
8. Gangrene. Forms. Morphology.
9. Morphology of apoptosis. Stages.
10. Fatty dystrophy. Determination. Morphology.
11. Proteinosis. Determination. Morphology.
12. Accumulation of calcium. Determination. Morphology.
13. Accumulation of iron. Determination. Hemosiderosis. Morphology.
14. Hemochromatosis. Determination. Morphology.
15. Accumulation of cholesterol and his derivatives.
16. Carbohydrate dystrophy.
17. Pigmental dystrophy.
18. Amyloidosis. Determination. Forms.

19. Morphology of amyloidosis (kidneys, gastrointestinal tract).
20. Morphology of amyloidosis (is a heart, spleen

CLASS №3. Inflammation and repair.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Cardinal signs of acute inflammation.
2. Stages of acute inflammation.
3. Morphology of acute inflammation.
4. Outcomes of acute inflammation.
5. Chronic inflammation.Types.Morphology.
6. Granulomatous inflammation. Definition. Morphology.
7. Comparison of Regeneration and Healing.Formation of the scar.

Assignment questions:

1. Inflammation. Definition. Forms.
2. The main signs of acute inflammation.
3. Stages of acute inflammation.
4. Morphology of acute inflammation (serous, catarrhal, fibrinous).
5. Morphology of acute inflammation (hemorrhagic, purulent).
6. Morphology of acute inflammation (membranous, pseudomembranous, gangrenous).
7. Outcomes of acute inflammation. Forms. Full resolution. Definition.
8. Formation of an abscess. Definition.
9. Formation of ulcers. Definition.
10. Formation of fistulas. Definition.
11. Scar formation. Definition.
12. Chronic inflammation. Types.
13. Morphology of chronic inflammation.

14. Granulomatous inflammation. Definition. Morphology.
15. Causes of granulomatous inflammation.
16. Systemic effects of inflammation.
17. Comparison of regeneration and healing.
18. Scar formation by primary intention.
19. Scar formation by secondary intention.
20. Complications in wound healing.

CLASS №4. Pathology of hemodynamics.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Edema. Definition. Mechanisms of edema formation. Morphology.
2. Hyperemia and congestion. Morphology.
3. Hemorrhage. Types. Complications.
4. Thrombosis. Virchow triad. Fate of the thrombus.
5. Morphology of the thrombi.
6. Embolism. Types of emboli.
7. Infarction. Definition. Mechanisms of infarct formation.
8. Types of infarcts. Morphology.
9. Shock. Types. Stages of shock.
10. Morphology of shock.

Assignment questions:

1. Swelling. Definition. Edema formation mechanisms. Morphology.
2. Hyperemia and venous congestion. Morphology.
3. Hemorrhage. Types. Complications.
4. Thrombosis. Virchow triad.
5. Dynamics of blood clot changes.
6. Morphology of blood clots (arterial and venous).

7. Posthumous clots. Morphology.
8. Embolism. Types of emboli.
9. Pulmonary thromboembolism.
10. Fat embolism. Morphology.
11. Air embolism. Definition. Complication.
12. Heart attack. Definition. Mechanisms of the formation of a heart attack.
13. Red heart attack. Morphology.
14. White heart attack. Morphology.
15. Shock. Types.
16. Stages of shock.
17. Morphology of shock (brain, heart, lungs).
18. Morphology of shock (liver, kidneys, digestive system, adrenal glands).
19. Outcome of shock.

CLASS №5. Pathology of the immune system.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Type1 hypersensitivity reaction.
2. Type2 hypersensitivity reaction.
3. Type3 hypersensitivity reaction.
4. Type4 hypersensitivity reaction.
5. Systemic lupus erythematosus. Definition. Morphology.
6. Rheumatoid arthritis. Definition. Morphology.
7. Primary immunodeficiency diseases. Definition. Causes.
8. Secondary immune deficiencies. Definition. Causes.
9. Transplantation pathology. Hyperacute rejection.
10. Transplantation pathology. Acute rejection. Morphology.
11. Transplantation pathology. Chronic rejection. Morphology.

Assignment questions:

1. Type 1 hypersensitivity reaction. Mechanism. Phases.
2. Type 1 hypersensitivity reaction. Forms. Clinical manifestations.
3. Type 2 hypersensitivity reaction. A specific mechanism.
4. Type 3 hypersensitivity reaction. The main mechanism.
5. Type 3 hypersensitivity reaction. Morphology.
6. Type 4 hypersensitivity reaction. A specific mechanism.
7. Type 4 hypersensitivity reaction. Morphology.
8. Systemic lupus erythematosus. Definition. Morphology.
9. Rheumatoid arthritis. Definition. Morphology.
10. Sjogren's syndrome. Definition. Morphology.
11. Systemic sclerosis. Definition. Morphology.
12. Primary immunodeficiency diseases. Definition. Causes.
13. Secondary immunodeficiency. Definition. Causes.
14. AIDS. Definition. Types.
15. Pathology of transplantation. Forms.
16. Hyper-acute rejection. Mechanism. Morphology.
17. Acute rejection. Mechanism. Morphology.
18. Chronic rejection. Mechanism. Morphology.
19. Graft-versus-host reaction.

CLASS №6. Neoplasia.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Etiology of tumors. Dysplasia.
2. Principal characteristics of benign and malignant tumors.
3. Grading and staging of tumors. TNM classification system.
4. Benign epithelial tumors. Morphology.
5. Benign connective tissue tumors. Morphology.

6. Malignant epithelial tumors. Morphology.
7. Malignant connective tissue tumors. Morphology.
8. Spread of tumors.

Assignment questions:

1. Etiology of tumors.
2. Dysplasia.
3. The main characteristics of benign tumors.
4. The main characteristics of malignant tumors.
5. Classification and stage of tumors.
6. TNM classification system.
7. Histological origin of the tumor.
8. Benign epithelial tumors. Adenoma, fibroadenoma. Morphology.
9. Nomenclature of mesenchymal tumors (tissue, benign, malignant).
10. Eponymous tumors.
11. Benign mesenchymal tumors. Lipoma. Chondroma. Osteoma.
Morphology.
12. Hemangioma. Forms.
13. Leiomyoma. Morphology.
14. Malignant epithelial tumors. Squamous cell carcinoma. Morphology.
15. Basal cell carcinoma. Morphology.
16. Adenocarcinoma. Forms. Morphology.
17. Malignant mesenchymal tumors. Liposarcoma. Myosarcoma.
Morphology.
18. Malignant melanoma. Types.
19. Metastasis. Metastatic pathways.

CLASS №7. Infectious diseases.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Measles. Definition. Morphology.
2. Mumps. Definition. Morphology.
3. Cytomegalovirus. Definition. Morphology.
4. Diphtheria. Definition. Morphology.
5. Anthrax. Definition. Morphology.
6. Plague. Definition. Morphology.
7. Tuberculosis. Definition. Primary Tuberculosis. Morphology.
8. Secondary Tuberculosis. Progressive pulmonary tuberculosis.

Morphology.

9. Primary Syphilis. Secondary Syphilis. Morphology.
10. Tertiary Syphilis. Morphology.
11. Congenital Syphilis. Morphology.

Assignment questions:

1. Measles. Definition. Morphology.
2. Epidemic parotitis. Definition. Morphology.
3. Herpes simplex virus. Definition. Morphology.
4. Varicella-zoster virus. Definition. Morphology.
5. Cytomegalovirus. Definition. Morphology.
6. Epstein-Barr virus. Definition. Morphology.
7. Staphylococcal infections. Morphology.
8. Streptococcal infections. Morphology.
9. Diphtheria. Definition. Morphology.
10. Anthrax. Definition. Morphology.
11. Plague. Definition. Morphology.
12. Tuberculosis. Definition. Primary tuberculosis. Morphology.
13. Secondary tuberculosis. Progressive pulmonary tuberculosis.

Morphology.

14. Primary syphilis. Morphology.

15. Secondary syphilis. Morphology.
16. Tertiary syphilis. Morphology.
17. Congenital syphilis. Morphology.
18. Fungal infections. Types.
19. Aspergillosis. Morphology.

CLASS №8. Module.

Equipment facilities: MCQ's. The list of questions:

1. Cellular adaptation.Types.Morphology.
2. Necrosis.Definition.Types.Morphology.
3. Fat accumulation.Definition.Morphology.
4. Protein accumulation. Definition.Morphology.
5. Calcium accumulation. Definition.Morphology.
6. Iron accumulation. Definition.Morphology.
7. Secondary amyloidosis. Definition.Morphology.
8. Cardinal signs of acute inflammation.
9. Stages of acute inflammation.
10. Morphology of acute inflammation.
11. Outcomes of acute inflammation.
12. Chronic inflammation.Types.Morphology.
13. Granulomatous inflammation. Definition. Morphology.
14. Comparison of Regeneration and Healing.Formation of the scar.
15. Edema. Definition.Mechanisms of edema formation.Morphology.
16. Hyperemia and congestion.Morphology.
17. Hemorrhage.Types.Complications.
18. Thrombosis.Virchow triad.Fate of the thrombus.
19. Morphology of the thrombi.
20. Embolism.Types of emboli.
21. Infarction. Definition.Mechanisms of infarct formation.
22. Types of infarcts.Morphology.

23. Shock.Types.Stages of shock.
24. Morphology of shock.
25. Type1 hypersensitivity reaction.
26. Type2 hypersensitivity reaction.
27. Type3 hypersensitivity reaction.
28. Type4 hypersensitivity reaction.
29. Systemic lupus erythematosus. Definition. Morphology.
30. Rheumatoid arthritis. Definition.Morphology.
31. Primary immunodeficiency diseases. Definitio. Causes.
32. Secondary immune deficiencies. Definition.Causes.
33. Transplantation pathology.Hyperacute rejection.Acute rejection.Chronic rejection.Morphology.
34. Etiology of tumors.Dysplasia.
- 35.Principal characteristics of bening and malignant tumors.
36. Grading and staging of tumors.TNM classification system.
37. Bening epithelial tumors. Morphology.
38. Bening connective tissue tumors. Morphology.
- 39.Malignant epithelial tumors. Morphology.
- 40.Malignant connective tissue tumors. Morphology.
41. Spread of tumors.
42. Measles. Definition. Morphology.
43. Mumps. Definition. Morphology.
44. Cytomegalovirus. Definition. Morphology.
45. Diphtheria. Definition. Morphology.
46. Anthrax. Definition. Morphology.
47. Plague. Definition.Morphology.
48. Tuberculosis. Definition.Primary Tuberculosis. Morphology.
49. Secondary Tuberculosis. Progressive pulmonary tuberculosis. Morphology.
50. Primary Syphilis. Secondary Syphilis. Morphology.

51. Tertiary Syphilis. Morphology.
52. Congenital Syphilis. Morphology.

SECTION II

Systemic Pathomorphology V semester

CLASS №9. Pathology of blood.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Iron deficiency anemia. Definition. Morphology.
2. Megaloblastic anemia. Definition. Morphology.
3. Aplastic anemia. Definition. Morphology.
4. Hemolytic anemias. Definition. Causes. Types.
5. Infectious Mononucleosis. Definition. Morphology.
6. Hodgkins Lymphoma. Definition. Subtypes. Stages.
7. Follicular lymphoma. Definition. Burkitts lymphoma. Definition. Morphology.
8. Plasma cell tumor. Definition. Morphology.

Assignment questions:

1. Iron deficiency anemia. Definition. Morphology.
2. Megaloblastic anemia. Definition. Morphology.
3. Aplastic anemia. Definition. Morphology.
4. Hemolytic anemias. Definition. Causes. Types.
5. Sickle cell anemia. Definition. Morphology.
6. Thalassemias. Definition. Morphology.
7. Infectious Mononucleosis. Definition. Morphology.
8. Cat Scratch Disease. Definition. Morphology.

9. Hodgkins Lymphoma. Definition. Subtypes.
10. Hodgkins Lymphoma. Stages. Morphology.
11. Non-Hodgkin's lymphomas. Definition. Types. Morphology.
12. Follicular lymphoma. Types. Definition.
13. Burkitts lymphoma. Definition. Morphology.
14. Burkitts lymphoma. Definition.
15. Plasma cell tumor. Definition. Morphology.
16. Acute lymphoblastic leukemia. Definition. Morphology.
17. Acute myeloblastic leukemia. Definition. Morphology.
18. Chronic lymphocytic leukemia. Definition. Morphology.
19. Chronic myeloid leukemia. Definition. Morphology.

CLASS №10. Pathology of vessels

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Atherosclerosis. Types. Risk factors for atherosclerosis.
2. Morphology of atherosclerosis. Complication of atherosclerosis.
3. Bening hypertension. Definition. Morphology.
4. Malignant hypertension. Definition. Morphology.
5. Aneurysm. Definition.Types.
6. Morphology of aneurysms.
7. Vasculitis. Definition.Types. Morphology.
8. Varicose Veins. Morphology.
9. Hemangiomas.Morphology.

Assignment questions:

1. Atherosclerosis. Types. Risk factors for atherosclerosis.
2. Morphology of atherosclerosis. Complication of atherosclerosis.
3. Benign hypertension. Definition. Morphology.

4. Malignant hypertension. Definition. Morphology.
5. Aneurysm. Definition. Types.
6. Morphology of aneurysms.
7. Complications of aneurysm.
8. Aortic dissection. Definition. Types.
9. Classification of Aortic dissection.
10. Complications of aortic dissection.
11. Vasculitis. Definition. Types.
12. Giant cells arteritis. Clinical manifestations. Morphology.
13. Kawasaki arteritis. Clinical manifestations. Morphology.
14. Varicose Veins. Morphology.
15. Vascular tumors. Benign tumors.
16. Vascular tumors. Malignant tumors.

CLASS №11. Pathology of the cardiovascular system.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Left-sided heart failure. Definition. Morphology.
2. Right-sided heart failure. Definition. Morphology.
3. Myocardial Infarction. Definition. Morphology.
4. Complications of a myocardial infarct.
5. Chronic ischemic heart disease. Definition. Morphology.
6. Hypertensive heart disease. Definition. Morphology.
7. Cardiomyopathies. Definition. Morphology. Types of cardiomyopathy.
8. Myocarditis. Definition. Morphology.
9. Pericarditis. Definition. Morphology.
10. Aortic stenosis. Aortic insufficiency. Definition. Morphology.
11. Mitral stenosis. Mitral insufficiency. Definition. Morphology.

Assignment questions:

1. Ischemic Heart Disease. Risk factors.
2. Myocardial Infarction. Morphology.
3. Cor Pulmonale. Mechanism. Morphology.
4. Left-sided heart failure. Definition. Morphology.
5. Right-sided heart failure. Definition. Morphology.
6. Complications of a myocardial infarct.
7. Chronic ischemic heart disease. Definition. Morphology.
8. Hypertensive heart disease. Definition. Morphology.
9. Cardiomyopathies. Definition. Morphology.
10. Types of cardiomyopathy.
11. Myocarditis. Definition. Morphology.
12. Pericarditis. Definition. Morphology.
13. Aortic stenosis. Aortic insufficiency. Definition. Morphology.
14. Mitral stenosis. Mitral insufficiency. Definition. Morphology.
15. Infectious Endocarditis. Complications.
16. Cardiac Neoplasms. Benign.
17. Cardiac Neoplasms. Malignant.

SECTION II**Systemic Pathomorphology****VI semester**

CLASS №12. Pathology of the respiratory system.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Emphysema. Definition. Types. Morphology.
2. Asthma. Definition. Types. Morphology.

3. Chronic bronchitis. Definition. Types. Morphology.
4. Bronchiectasis. Definition. Morphology.
5. Sarcoidosis. Definition. Morphology.
6. Asbestosis. Definition. Morphology.
7. Silicosis. Definition. Morphology.
8. Anthracosis. Definition. Morphology.
9. Bronchopneumonia. Definition. Morphology.
10. Lobar pneumonia. Stages of lobar pneumonia. Morphology.
11. Community-acquired atypical pneumonia. Definition. Morphology.
12. Atelectasis. Definition. Forms of atelectasis.
13. Pulmonary neoplasms. Risk factors. Gross morphology.
14. Microscopic morphology of lung cancer.
15. Pleural effusions. Definition. Causes.
16. Pneumothorax. Definition. Causes.

Assignment questions:

1. Emphysema. Definition. Types. Morphology.
2. Asthma. Definition. Types. Morphology.
3. Chronic bronchitis. Definition. Types. Morphology.
4. Bronchiectasis. Definition. Morphology.
5. Sarcoidosis. Definition. Morphology.
6. Asbestosis. Definition. Morphology.
7. Silicosis. Definition. Morphology.
8. Anthracosis. Definition. Morphology.
9. Bronchopneumonia. Definition. Morphology.
10. Lobar pneumonia. Stages of lobar pneumonia. Morphology.
11. Community-acquired atypical pneumonia. Definition. Morphology.
12. Atelectasis. Definition. Forms of atelectasis.
13. Pulmonary neoplasms. Risk factors. Gross morphology.
14. Microscopic morphology of lung cancer.

15. Pleural effusions. Definition. Causes.
16. Pneumothorax. Definition. Causes.

CLASS №13. Pathology of gastrointestinal tract.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Reflux esophagitis. Definition. Morphology.
2. Barrett esophagus. Definition. Morphology.
3. Malignant tumors of the esophagus. Forms. Morphology.
4. Acute gastritis. Definition. Morphology.
5. Chronic gastritis. Causes. Types. Morphology.
6. Peptic ulcer disease. Definition. Morphology.
7. Acute gastric ulcers. Definition. Morphology.
8. Gastric Polyps. Definition. Morphology.
9. Gastric Carcinoma. Definition. Morphology.
10. Comparison of Crohn disease and Ulcerative colitis.
11. Diverticular disease. Types. Complications.
12. Bening tumor of the large intestine. Morphology.
13. Malignant tumor of the large intestine. Risk factors. Types. Morphology.

Assignment questions:

1. Reflux esophagitis. Definition. Morphology.
2. Barrett esophagus. Definition. Morphology.
3. Malignant tumors of the esophagus. Forms. Morphology.
4. Acute gastritis. Definition. Morphology.
5. Chronic gastritis. Causes. Types. Morphology.
6. Peptic ulcer disease. Definition. Morphology.
7. Acute gastric ulcers. Definition. Morphology.

8. Gastric Polyps. Definition. Morphology.
9. Gastric Carcinoma. Definition. Morphology.
10. Comparison of Crohn disease and Ulcerative colitis.
11. Diverticular disease. Types. Complications.
12. Bening tumor of the large intestine. Morphology.
13. Malignant tumor of the large intestine. Risk factors.
14. Types. Morphology.

CLASS №14. Pathology of the hepato-biliary system and pancreas.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Hepatic failure. Causes. Cardinal signs of hepatic failure.
2. Patterns of hepatic injury.
3. Jaundise. Definition. Types.
4. Cirrhosis of the liver. Definition. Causes. Morphology.
5. Viral hepatitis. Definition. Causes. Morphology.
6. Chronic hepatitis. Definition. Causes. Morphology.
7. Alcohol-induced liver disease. Morphology.
8. Wilson disease. Definition. Morphology.
9. Bening tumors of the liver. Definition. Causes. Morphology.
10. Malignant tumors of the liver. Definition. Causes. Morphology.
11. Primary biliary cirrhosis. Definition. Morphology.
12. Primary sclerosing cholangitis. Definition. Morphology.
13. Cholecystitis. Definition. Causes. Types. Morphology.
14. Acute Pancreatitis. Definition. Morphology.
15. Chronic Pancreatitis. Definition. Morphology.
16. Pancreatic adenocarcinoma. Definition. Morphology.

Assignment questions:

1. Hepatic failure. Causes. Cardinal signs of hepatic failure.
2. Patterns of hepatic injury.
3. Jaundice. Definition. Types.
4. Cirrhosis of the liver. Definition. Causes. Morphology.
5. Viral hepatitis. Definition. Causes. Morphology.
6. Chronic hepatitis. Definition. Causes. Morphology.
7. Alcohol-induced liver disease. Morphology.
8. Wilson disease. Definition. Morphology.
9. Benign tumors of the liver. Definition. Causes. Morphology.
10. Malignant tumors of the liver. Definition. Causes. Morphology.
11. Primary biliary cirrhosis. Definition. Morphology.
12. Primary sclerosing cholangitis. Definition. Morphology.
13. Cholecystitis. Definition. Causes. Types. Morphology.
14. Acute Pancreatitis. Definition. Morphology.
15. Chronic Pancreatitis. Definition. Morphology.
16. Pancreatic adenocarcinoma. Definition. Morphology.

CLASS №15. Pathology of kidney.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Diffuse proliferative glomerulonephritis. Definition. Causes. Morphology.
2. Rapidly progressive glomerulonephritis. Definition. Causes. Morphology.
3. Membranoproliferative glomerulonephritis. Causes. Definition. Morphology.
4. Membranous nephropathy. Definition. Causes. Morphology.
5. Chronic glomerulonephritis. Definition. Causes. Morphology.

6. Acute pyelonephritis. Definition. Causes. Morphology.
7. Chronic pyelonephritis. Definition. Causes. Morphology.
8. Acute tubular necrosis. Definition. Causes. Morphology.
9. Bening nephrosclerosis. Definition. Causes. Morphology.
10. Malignant nephrosclerosis. Definition. Causes Morphology.
11. Renal cell carcinoma. Definition. Causes. Morphology.
12. Nephroblastoma(Wilms tumor). Definition. Causes. Morphology.
13. Transitional cell carcinoma. Definition. Causes. Morphology.

Assignment questions:

1. Diffuse proliferative glomerulonephritis. Definition. Causes. Morphology.
2. Rapidly progressive glomerulonephritis. Definition. Causes. Morphology.
3. Membranoproliferative glomerulonephritis. Causes. Definition. Morphology.
4. Membranous nephropathy. Definition. Causes. Morphology.
5. Chronic glomerulonephritis. Definition. Causes. Morphology.
6. Acute pyelonephritis. Definition. Causes. Morphology.
7. Chronic pyelonephritis. Definition. Causes. Morphology.
8. Acute tubular necrosis. Definition. Causes. Morphology.
9. Bening nephrosclerosis. Definition. Causes. Morphology.
10. Malignant nephrosclerosis. Definition. Causes Morphology.
11. Renal cell carcinoma. Definition. Causes. Morphology.
12. Nephroblastoma(Wilms tumor). Definition. Causes. Morphology.
13. Polycystic kidney disease. Forms.
14. Renal transplantation. Rejection.

CLASS №16. Pathology of the male reproductive systems.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Bening nodular prostatic carcinoma. Causes. Morphology.
2. Prostatic carcinoma. Causes. Morphology.

Assignment questions:

1. Bening nodular prostatic hyperplasia. Morphology.
2. Prostatic carcinoma. Morphology. Diderence.
3. Male breast. Ginecomastia. Morphology.

CLASS №17. Pathology of the female reproductive systems.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Carcinoma of the cervix. Causes. Morphology.
2. Endometrial hyperplasia. Causes. Forms of Endometrial hyperplasia. Morphology.
3. Endometrial adenocarcinoma. Causes. Morphology.
4. Tumors of the ovary. Types of surface epithelial tumors. Morphology.
5. Tumors of the ovary. Types of germ cell tumors. Morphology.
6. Choriocarcinoma. Definition. Causes. Morphology.
7. Hydatidiform mole. Definition. Causes. Morphology.
8. Bening tumors of the breast. Types. Morphology.
9. Brest carcinoma. Causes.Types. Morphology.
10. Spread of breast cancer. Local and metastatic spread.

Assignment questions:

1. Carcinoma of the cervix. Causes. Morphology.
2. Endometrial hyperplasia. Causes. Forms of Endometrial hyperplasia. Morphology.
3. Endometrial adenocarcinoma. Causes. Morphology.

4. Tumors of the ovary. Types of surface epithelial tumors. Morphology.
5. Tumors of the ovary. Morphology.
6. Types of germ cell tumors. Morphology.
7. Choriocarcinoma. Definition. Causes. Morphology.
8. Hydatidiform mole. Definition. Causes. Morphology.
9. Bening tumors of the breast. Types. Morphology.
10. Breast carcinoma. Causes.Types. Morphology.
11. Spread of breast cancer. Local and metastatic spread.

CLASS №18. Disorders of endocrine function, part 1.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Hyperpituitarism. Definition.Causes. Morphology.
2. Hypopituitarism. Definition. Causes. Morphology.
3. Hashimotos thyroiditis. Definition. Causes. Morphology.
4. Subacute granulomatous thyroiditis. Definition. Causes. Morphology.
5. Tumors of thyroid gland. Papillary adenocarcinoma. Definition.Causes. Morphology.

Assignment questions:

- 1.Hyperpituitarism. Morphology, clinic.
2. Hypopituitarism. Morphology, clinic.
3. Acromegaly: causes, clinical manifestations.
4. Hashimoto's thyroiditis. Morphology.
5. Subacute granulomatous thyroiditis. The reasons. Morphology.
6. Tumors of the thyroid gland: benign
7. Tumors of the thyroid gland: malignant. Metastatic pathways.

CLASS №19. Disorders of endocrine function, part 2.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Comparison and contrast of Type 1 diabetes mellitus and Type2 diabetes mellitus.
2. Complication of diabetes.
3. Cushing Syndrome. Definition.Causes. Morphology.
4. Primary hyperaldosteronism (Conns syndrome). Secondary hyperaldosteronism.

Definition. Causes.Morphology.

5. Pheochromocytoma. Definition. Causes.Morphology.

Assignment questions:

- 1.Diabetes mellitus type.
2. Diabetes mellitus type.
3. Complications of diabetes.
- 4.Cushing's syndrome. Definition. The reasons. Morphology.
5. Kimmelsteel-Wilson syndrome.
6. Diabetic micro and macroangiopathy.
7. Hyperparathyroidism.
8. Hypoparathyroidism.

CLASS №20. Genetic and pediatric pathology.

Equipment facilities: projector, educational video materials, training tests, clinical cases.

Theory questions for self-control:

1. Types of genetic pathologies of childhood.
2. Congenital pathology.
3. Prematurity.

4. Children's tumors.

Assignment questions:

1. Congenital heart disease.
2. Congenital malformations.
3. Congenital malformations of the CNS.
4. Congenital malformations of the respiratory system.
5. Congenital malformations of the gastrointestinal tract and other organs and systems.
6. Benign and malignant tumors of childhood.

CLASS №21. Exam.

Equipment facilities: MCQ's.

The list of questions:

1. Cellular adaptation.Types.Morphology.
2. Necrosis.Definition.Types.Morphology.
3. Fat accumulation.Definition.Morphology.
4. Protein accumulation. Definition.Morphology.
5. Calcium accumulation. Definition.Morphology.
6. Iron accumulation. Definition.Morphology.
7. Secondary amyloidosis. Definition.Morphology.
8. Cardinal signs of acute inflammation.
9. Stages of acute inflammation.
10. Morphology of acute inflammation.
11. Outcomes of acute inflammation.
12. Chronic inflammation.Types.Morphology.
13. Granulomatous inflammation. Definition. Morphology.
14. Comparison of Regeneration and Healing.Formation of the scar.
15. Edema. Definition.Mechanisms of edema formation.Morphology.
16. Hyperemia and congestion.Morphology.

17. Hemorrhage.Types.Complications.
18. Thrombosis.Virchow triad.Fate of the thrombus.
19. Morphology of the thrombi.
20. Embolism.Types of emboli.
21. Infarction. Definition.Mechanisms of infarct formation.
22. Types of infarcts.Morphology.
23. Shock.Types.Stages of shock.
24. Morphology of shock.
25. Type1 hypersensitivity reaction.
26. Type2 hypersensitivity reaction.
27. Type3 hypersensitivity reaction.
28. Type4 hypersensitivity reaction.
29. Systemic lupus erythematosus. Definition. Morphology.
30. Rheumatoid arthritis. Definition.Morphology.
31. Primary immunodeficiency diseases. Definitio. Causes.
32. Secondary immune deficiencies. Definition.Causes.
33. Transplantation pathology.
34. Hyperacute rejection.Acute rejection.Chronic rejection.Morphology.
35. Etiology of tumors.Dysplasia.
35. Principal characteristics of bening and malignant tumors.
36. Grading and staging of tumors.TNM classification system.
37. Bening epithelial tumors. Morphology.
38. Bening connective tissue tumors. Morphology.
- 39.Malignant epithelial tumors. Morphology.
- 40.Malignant connective tissue tumors. Morphology.
41. Spread of tumors.
42. Measles. Definition. Morphology.
43. Mumps. Definition. Morphology.
44. Cytomegalovirus. Definition. Morphology.
45. Diphtheria. Definition. Morphology.

46. Anthrax. Definition. Morphology.
47. Plague. Definition. Morphology.
48. Tuberculosis. Definition. Primary Tuberculosis. Morphology.
49. Secondary Tuberculosis. Progressive pulmonary tuberculosis. Morphology.
50. Primary Syphilis. Secondary Syphilis. Morphology.
51. Tertiary Syphilis. Morphology.
52. Congenital Syphilis. Morphology.
53. Iron deficiency anemia. Definition. Morphology.
54. Megaloblastic anemia. Definition. Morphology.
55. Aplastic anemia. Definition. Morphology.
56. Hemolytic anemias. Definition. Causes. Types.
57. Infectious Mononucleosis. Definition. Morphology.
58. Hodgkins Lymphoma. Definition. Subtypes. Stages.
59. Follicular lymphoma. Definition. Burkitts lymphoma. Definition. Morphology.
60. Plasma cell tumor. Definition. Morphology.
61. Atherosclerosis. Types. Risk factors for atherosclerosis.
62. Morphology of atherosclerosis. Complication of atherosclerosis.
63. Benign hypertension. Definition. Morphology.
64. Malignant hypertension. Definition. Morphology.
65. Aneurysm. Definition. Types.
66. Morphology of aneurysms.
67. Vasculitis. Definition. Types. Morphology.
68. Varicose Veins. Morphology.
69. Hemangiomas. Morphology.
70. Left-sided heart failure. Definition. Morphology.
71. Right-sided heart failure. Definition. Morphology.
72. Myocardial Infarction. Definition. Morphology.
73. Complications of a myocardial infarct.

74. Chronic ischemic heart disease. Definition. Morphology
75. Hypertensive heart disease. Definition. Morphology.
76. Cardiomyopathies. Definition. Morphology. Types of cardiomyopathy.
77. Myocarditis. Definition. Morphology.
78. Pericarditis. Definition. Morphology.
79. Aortic stenosis. Aortic insufficiency. Definition. Morphology.
80. Mitral stenosis. Mitral insufficiency. Definition. Morphology.
81. Emphysema. Definition. Types. Morphology.
82. Asthma. Definition. Types. Morphology.
83. Chronic bronchitis. Definition. Types. Morphology.
84. Bronchiectasis. Definition. Morphology.
85. Sarcoidosis. Definition. Morphology.
86. Asbestosis. Definition. Morphology.
87. Silicosis. Definition. Morphology.
88. Anthracosis. Definition. Morphology.
89. Bronchopneumonia. Definition. Morphology.
90. Lobar pneumonia. Stages of lobar pneumonia. Morphology.
91. Community-acquired atypical pneumonia. Definition. Morphology.
92. Atelectasis. Definition. Forms of atelectasis.
93. Pulmonary neoplasms. Risk factors. Gross morphology.
94. Microscopic morphology of lung cancer.
95. Pleural effusions. Definition. Causes.
96. Pneumothorax. Definition. Causes.
97. Reflux esophagitis. Definition. Morphology.
98. Barrett esophagus. Definition. Morphology.
99. Malignant tumors of the esophagus. Forms. Morphology.
100. Acute gastritis. Definition. Morphology.
101. Chronic gastritis. Causes. Types. Morphology.
102. Peptic ulcer disease. Definition. Morphology.
103. Acute gastric ulcers. Definition. Morphology.

104. Gastric Polyps. Definition. Morphology.
105. Gastric Carcinoma. Definition. Morphology.
106. Comparison of Crohn disease and Ulcerative colitis.
107. Diverticular disease. Types. Complications.
108. Bening tumor of the large intestine. Morphology.
109. Malignant tumor of the large intestine. Risk factors. Types. Morphology.
110. Hepatic failure. Causes. Cardinal signs of hepatic failure.
111. Patterns of hepatic injury.
112. Jaundise. Definition. Types.
113. Cirrhosis of the liver. Definition. Causes. Morphology.
114. Viral hepatitis. Definition. Causes. Morphology.
115. Chronic hepatitis. Definition. Causes. Morphology.
116. Alcohol-induced liver disease. Morphology.
117. Wilson disease. Definition. Morphology.
118. Bening tumors of the liver. Definition. Causes. Morphology.
119. Malignant tumors of the liver. Definition. Causes. Morphology.
120. Primary biliary cirrhosis. Definition. Morphology.
121. Primary sclerosing cholangitis. Definition. Morphology.
122. Cholecystitis. Definition. Causes. Types. Morphology.
123. Acute Pancreatitis. Definition. Morphology.
124. Chronic Pancreatitis. Definition. Morphology.
125. Pancreatic adenocarcinoma. Definition. Morphology.
126. Diffuse proliferative glomerulonephritis. Definition. Causes. Morphology.
127. Rapidly progressive glomerulonephritis. Definition. Causes. Morphology.
128. Membranoproliferative glomerulonephritis. Causes. Definition. Morphology.
129. Membranous nephropathy. Definition. Causes. Morphology.

130. Chronic glomerulonephritis. Definition. Causes. Morphology.
131. Acute pyelonephritis. Definition. Causes. Morphology.
132. Chronic pyelonephritis. Definition. Causes. Morphology.
133. Acute tubular necrosis. Definition. Causes. Morphology.
134. Bening nephrosclerosis. Definition. Causes. Morphology.
135. Malignant nephrosclerosis. Definition. Causes Morphology.
136. Renal cell carcinoma. Definition. Causes. Morphology.
137. Nephroblastoma(Wilms tumor). Definition. Causes. Morphology.
138. Transitional cell carcinoma. Definition. Causes. Morphology.
139. Bening nodular prostatic carcinoma. Causes. Morphology.
140. Prostatic carcinoma. Causes. Morphology.
141. Carcinoma of the cervix. Causes. Morphology.
142. Endometrial hyperplasia. Causes. Forms of Endometrial hyperplasia. Morphology.
143. Endometrial adenocarcinoma. Causes. Morphology.
144. Tumors of the ovary. Types of surface epithelial tumors. Morphology.
145. Tumors of the ovary. Types of germ cell tumors. Morphology.
146. Choriocarcinoma. Definition. Causes. Morphology.
147. Hydatidiform mole. Definition. Causes. Morphology.
148. Bening tumors of the breast. Types. Morphology.
149. Brest carcinoma. Causes.Types. Morphology.
150. Spread of breast cancer. Local and metastatic spread.
151. Hyperpituitarism. Definition.Causes. Morphology.
152. Hypopituitarism. Definition. Causes. Morphology.
153. Hashimotos thyroiditis. Definition. Causes. Morphology.
154. Subacute granulomatous thyroiditis. Definition. Causes. Morphology.
155. Tumors of thyroid gland. Papillary adenocarcinoma. Definition.Causes. Morphology.
156. Comparison and contrast of Type 1 diabetes mellitus and Type2 diabetes mellitus.

- 157. Complication of diabetes.
- 158. Cushing Syndrome. Definition.Causes. Morphology.
- 159. Primary hyperaldosteronism (Conns syndrome). Secondary hyperaldosteronism. Definition. Causes.Morphology.
- 160. Pheochromocytoma. Definition. Causes.Morphology.
- Congenital heart disease.
- 161. Congenital pathology.
- 162. Prematurity.
- 163. Children's tumors.

Examples of MCQs for the Final Exam:

The main types of cellular adaptation:

- A. anaplasia
- B. metaplasia
- C.involution
- D.dysplasia
- E. agenesis

Hyperplasia is:

- A. an increase in the number of cells
- B. a decrease in the number of cells
- C. a decrease in cell volume
- D. an increase in lymphocytes
- E. an increase in plasma cells

An example of physiological hyperplasia:

- A. an increase in myocardial thickness
- B. increase in breast size during pregnancy
- C. increase in glandular epithelium
- D. increase in the size of the prostate gland
- E. increase in the size of the liver

Pathological hyperplasia is:

- A. an increase in the endometrium during the menstrual cycle
- B. an increase in the thickness of the adrenal cortex due to increased secretion of ACTH by pituitary adenoma
- C. increase in the number of hepatocytes
- D. accumulation of lipids
- E. increase in cavities

What process develops mainly after obstruction of arteries in organs with a double blood supply and loose parenchyma:

- A. Hemorrhagic heart attack
- B. Ischemic heart attack
- C. Angiogenesis
- D. Gas embolism
- E. Air embolism

In which cells upon contact with an antigen can degranulation occur with the subsequent release of inflammatory mediators:

- A. Mast cells
- B. Neutrophils
- C. Monocytes
- D. Tissue lymphocytes
- E. Plasma lymphocytes

What role does granzyme play in the perforin-granzyme mechanism:

- A. Mast cells
- B. Neutrophils
- C. Monocytes
- D. Tissue lymphocytes
- E. Plasma lymphocytes

INDEPENDENT STUDENTS WORK (ISW)

The program provides for the implementation of 20 individual tasks on given topics in the form of a short essay (10 essays for each section of the discipline). The volume of the finished work (essay) should be 1-2 pages.

№	Content of assignment	Form of execution	Expected volume of finished work (pages)	Expected amount of hours for execution
1.	Work with scientific sources			2-3
2.	Essay writing	Essay	1-2	1

To complete an individual assignment, each higher education applicant is given one question on a topic that corresponds to the topic of the practical class, the material of which is not included in the part of the lecture or this practical class. The aim is to: read and analyze the text of scientific sources (articles, monographs); compare the information from different sources; synthesize of information sources; create a short essay that fully answers the question, describes the experience gained during the assignment writing, as well as shows the own thoughts on a given topic.

The deadline of one assignment is 2 weeks. If the applicant for higher education is unable to complete the assignment on time, then: assignments that were provided within one week after the deadline, receive a deduction of 10% mark; assignments that were sent with a delay of more than one week and less than 2 weeks will receive a deduction of 20% mark; assignments that were submitted 2 weeks or more late will not be accepted at all (except in special circumstances [e.g., death in the family, serious health problems]).

All essays are required to be designed according to an academic standard. To complete each task, applicants are provided with brief information on exactly how to work with a particular source, what results are expected and what criteria will be used for assessment of their work.

The goals of independent individual assignments are to:

1. In-depth study of the topic of classes.
2. Acquire or improve skills in searching, processing and critical analysis of information from sources of various types.
3. Acquire or improve skills to clearly and concisely express own opinion in academic text.
4. Acquire or improve the skills of designing an academic text to meet standard requirements.

Where to find the questions for Assignments. You can find the List of Assignment questions in your Moodle. How would you know which question from this list is yours?

The question of your Assignment. In the course «Pathomorphology» on Moodle, the lists of students from all groups have been published in the E-register section. Each student in this list has their own serial number, which is assigned to him/her and does not change until the end of the academic year. Look at that list and remember your serial number, because that is the number of your questions in the List of

Assignment questions. Thus, if you have a serial number - 3, that means that for each class you have to write an answer to the Assignment question number 3.

Where to send the completed Assignment. The completed Assignments must be sent to your teacher by email. When sending a completed assignment to your teacher by email, name your file as shown in the example below:

303-Adeleke-1.docx

- 303 is your group number
- Your last name
- 1 is a class number

CONTROL METHODS

There are two main forms of knowledge control:

Current control — is carried out at all practical classes in the form of an interview with the teacher or MCQs on the topic, as well as in the form of checking the individual work.

Final control (credit, exam) — is carried out at the last class of the relevant section of the discipline in the MCQs format: 80 MCQs [in each test question applicants need to choose one correct answer out of five; passing score – 50 correct answers [60%], time for taking the MCQs – 80 minutes]. A grade for a credit or exam is considered positive if it is 50 or more points.

SCORING SCHEME

According to the Regulations on the organization of the educational process in V. N. Karazin Kharkiv National University, «the maximum number of points that student can score as a result of studying a particular credit is **200 points**, including for studying during the semester — **120 points** and for the final test work — **80 points**»¹.

Grades for **current control** are given on a 20-point scale for the «General pathomorphology» block (12 points are considered as passing – 60%) and on a 12-point scale for the «Systemic pathomorphology» block (7 points – 60% are considered as passing). The maximum amount of points for all current classes is 120 points for each block.

¹ Положення про організацію освітнього процесу в V. N. Karazin Kharkiv National University (нова редакція) (Наказ ректора № 0211-1/342 від 10.07.2018 р.). – С. 75.

Score for 20-point scale	Percentage (%)	Score for 12-point scale	Percentage (%)
18–20	90–100	11–12	90–100
15–17	75–89	9–10	75–89
12–14	60–74	7–8	60–74
0–11	0–59	0–6	0–59

Grades for *credit* and *exam* are given on an 80-point scale (50 points – 60% are considered as passing). The maximum amount of points for credit and exam is 80 points, respectively.

Score for 80-point scale	Percentage (%)	Credit	Exam
72–80	90–100	Credited	Excellent
60–71	75–89	Credited	Good
50–59	60–74	Credited	Satisfactory
0–49	0–59	Not credited	Not satisfactory

The *final score* for the discipline is given on a 200-point scale (120 points are considered as passing – 60%). The maximum amount of points is 200 points.

Score for 200-point scale	Percentage (%)	Status
180–200	90–100	Excellent
150–179	75–89	Good
120–149	60–74	Satisfactory
0–119	0–59	Not satisfactory

ASSESSMENT CRITERIA

Assessment criteria of academic achievements of applicants in practical classes

Grades for *current control* are given on a 20-point scale for the «General pathomorphology» section (12 points are considered as passing – 60%) and on a 12-

point scale for the «Systemic pathomorphology» section (7 points – 60% are considered as passing). The maximum amount of points for all current classes is 120 points for each section.

Points	Criteria of assessment
20/ 12	It is given to the applicant, when he himself, competently and consistently, with full completeness, using the data of additional literature, answered to all questions with the manifestation of the ability to characterize a variety of biological phenomena and processes; clearly and correctly defines and discloses the content of scientific terms and concepts; independently and correctly performs individual work without any mistakes.
18-19/ 11	It is given to the applicant when he reveals complete knowledge of the actual material; is able to analyze, evaluate and disclose the essence of biological phenomena and processes; is able to establish causal relationships; is able to reach conclusions; independently and correctly performs individual work, but makes minor mistakes while using scientific terms and concepts.
15-17/ 9-10	It is given to the applicant when he understands the main content of the material; gives complete definitions of biological concepts and terms, makes minor mistakes in the sequence of presentation; independently, with the knowledge of the method, performs a individual work, but demonstrates some inaccuracies in the sequence of work.
13-14/ 8	It is given to the applicant when he understands basic material; makes significant mistakes; gives simple examples; the definition of biological concepts is not sufficient; characterizes the general features of biological objects; never finishes the individual work completely.
12/ 7	It is given to the applicant when he reveals the fragmentary understanding of the material; never finishes the individual work completely.
0	It is given to the applicant when he does not understand the basic material at all; never performs the individual practical work.

Assessment criteria of assignments (IWS)

Grades for *individual work* (assignments) are given on a 20-point scale for the «General pathomorphology» section (12 points are considered as passing – 60%) and on a 12-point scale for the «Systemic pathomorphology» section (7 points – 60% are considered as passing). The maximum amount of points for all current classes is 120 points for each section.

Independence (absence of plagiarism), correctness and completeness of the assignment are taken into account. According to the «V.N. Karazin University Code of Values», the university adheres to **academic integrity**, so assignments in which the share of plagiarism exceeds 20% are returned without assessment; assignments with more than 60% of plagiarism are returned without permission to rework; and assignments that are completely copying another student's work are returned with prohibition to perform any other assignments.

Points	Criteria of assessment
20/ 12	It is given to the applicant when the he independently, competently and consistently, with knowledge of methods has performed the assignment, correctly applying scientific terms and concepts.
18-19/ 11	It is given to the applicant when the he independently, with knowledge of methods has performed the assignment, but has admitted small inaccuracies in sequence of the completed work.
15-17/ 9-10	It is given to the applicant when he independently, with knowledge of methods has performed the assignment, but has made a number of mistakes in sequence of the completed work.
13-14/ 8	It is given to the applicant when he is at the middle level in the method of work, the assignment was performed incompletely with significant mistakes.
12/ 7	It is given to the applicant when he badly revealed the essence of assignment, showed the initial idea of the study subject, did not complete the assignment.
0	It is given to the applicant when he has not written the assignment at all or has no idea about the subject of study, or the work is performed with a share of plagiarism over 60%.

Assessment criteria of academic achievements of applicants for the credit and exam

Grades for **credit** and **exam** are given on an 80-point scale (50 points – 60% are considered as passing). The maximum amount of points for credit and exam is 80 points, respectively.

To be permitted to the credit or exam, the applicant must complete all missed classes (lectures and practical).

The credit and exam are held in a test format (one correct answer is 1 point): 80 tests [in each test question you need to choose one correct answer out of five; passing score - 50 correct answers [60%], time for passing tests - 1 hour 20 minutes], all theoretical questions from the methodological manuals "General pathomorphology, systemic pathomorphology part 1, 2", which are provided to all applicants at the beginning of the academic year. The grade for the test or exam is considered positive if it is 50 points or more.

Refusal of an applicant of higher education to complete a written assignment during a credit or exam is considered as an unsatisfactory answer.

Applicants for higher education are notified of the results of the credit or exam written work no later than five working days after it was written. The applicant of higher education has the right to see the checked work and to receive an explanation of the received assessment.

In case of disagreement with the assessment, the applicant of higher education has the right to submit a written appeal to the head of the department on the day of the announcement of the assessment or the next working day, specifying the reasons for disagreement with the assessment. The head of the department together with the examiners (or, if necessary, other specialists) considers the appeal within three days and verbally notifies the higher education applicant about the results of the review.

If, according to the results of the credit or exam, the knowledge level of the applicant of higher education is estimated to be less than 120 points, he has the right to retake the credit or exam according to the official retaking schedule before the end of the examination session. A credit or exam can be taken and retaken no more than three times in total. An applicant of higher education who, based on the results of taking and retaking a credit or exam, scored less than 120 points, is expelled from the university by order of the rector (first vice-rector) as having failed to complete the curriculum.

**Assessment criteria
of personal educational achievements of applicants**

Points	Criteria of assessment
2	Selection of two video or two audio materials from the particular sections of the discipline.
4	Speech at a meeting of a student scientific circle.
6	Participation in a student's Olympiad on discipline or work on a student's scientific forum in the form of publication of abstracts.
8	Work on student's scientific forum in the form of a poster presentation.
10	Work on a student's scientific forum in the form of an oral report.
12	Prize-winning place for participation in the student's Olympiad on discipline or prize-winning place for participation in the work of the scientific forum.

RECOMMENDED LITERATURE

Main:

1. General pathomorphology: guidance for students [for the 3rd year medical students] / compiled by Protsenko E. S., Remnyova N. A. – V.N. Karazin Kharkiv National University, 2022 – 158 p.;
2. Systemic pathomorphology. Part I: guidance for students [for the 3rd year medical students] / compiled by Protsenko E. S., Remnyova N. A. – V.N. Karazin Kharkiv National University, 2022 – 124 p.;
3. Systemic pathomorphology. Part II: guidance for students [for the 3rd year medical students] / compiled by Protsenko E. S., Remnyova N. A. – V.N. Karazin Kharkiv National University, 2022 – 136 p.;
4. Kumar V. Robbins Basic Pathology tenth edition / Kumar V., Abbas A.K., Aster J.C. – Canada: Elsevier Health Sciences, 2024 – 910 p.

Additional:

1. Pathomorphology : textbook / I.V. Sorokina, V.D. Markovskiy, D.I. Halata et al. ; edited by I.V. Sorokina, V.D. Markovskiy, D.I. Halata. — 2nd edition. — Kyiv : AUS Medicine Publishing, 2020. — 328 p.
2. Underwood, J.C.E. (2019). General and Systematic Pathology (5th ed). Elsevier Health Sciences.

USEFUL WEB SOURCES

1. **MedicalStudent.com** - provides links to online medical textbooks, medical journals, continuing education/board exam information, and more.
<https://www.medicalstudent.com>
2. **MedicalMatrix** – offers both paid and free links to online textbooks, CME, and medical journals. <https://www.healio.com/>
3. **WebPath** -pathology images and text for medical education. This resource is designed for students and workers in the health care sciences studying pathology.
4. **FreeBookCenter** - provides free e-books for medical students.
http://www.freebookcentre.net/medical_text_books_journals/medical_text_books_online.html
5. **Omni Medical Search** – this search engine is dedicated to gathering information from some of the top medical professional websites. The information provided by the search engine is primarily from peer level sources.
<http://www.omnimedicalsearch.com/>
6. **Bright Knowledge** – students are provided with essential guides for their career, education, and general student life. <https://www.brightknowledge.org/>
7. **PubMed** - provides access to citations going back for the past 40 years.
<https://www.ncbi.nlm.nih.gov/pubmed/>
8. **eMedicine** - offers over 6,500 clinical articles written by contributing physicians. <https://emedicine.medscape.com/>

9. **Merriam Webster Online Dictionary** – famous medical dictionary trusted by many. You can also go to the pronunciation and explanation guides for more help. <https://www.merriam-webster.com/>

10. **Medexam** - prepares for many of your med school exams. <http://www.medexam.net/>

11. **Supercourse** - almost 3500 lectures from scientists around the world in this repository of information on public health and prevention. <http://www.pitt.edu/~super1/>

ONLINE STUDYING

Teaching platform. Online teaching is carried out on the **Moodle** platform.

Preparation for classes. Preparation for classes is carried out by students independently on the basis of our textbooks *General Pathomorphology*, *Systemic Pathomorphology* (parts 1 and 2), *Lectures* (Power Point presentation with voiceover), *KROK-1 MCQ's book*, training videos and other additional materials.

Classes. The classes and knowledge monitoring are carried out by your teacher in the *Google Meet* video chat according to your official Timetable (the rules of conduct for online Classes, online Module 1 and online Final Exam are published separately in the “General Rules and Instruction” section).

Rework of the classes. You have to rework your classes to your teacher in the *Google Meet* video chat according to the Rework Timetable (every teacher has his/her own Timetable of reworks, so they will announce it to you separately).

Academic honesty. Students found cheating in any form, will receive an automatic failing grade for the course and their names will be sent to the Dean of the Medical School for further disciplinary action.

Communication with teachers. You have to use the *email* or your *Viber group chat* to communicate with your teachers. Please, *don't use* WhatsApp, Facebook, Telegram or other social media for that. Teachers will not respond to these requests.

RULES OF ONLINE CONDUCT

General rules:

1. The class, module and final exam will be video recorded.
2. The student taking a video proctored online class, module and final exam must prove their identity prior to the examination by showing their ID card, passport and credit book.
3. The student is obliged to show their room by making a 360° film of the room with the webcam.
4. The student must be dressed and behave decently at all times.
5. The student's room must be quiet and tranquil. There may not be sounds from music, television or any other sounds.
6. The webcam and microphone required for the class, module and final exam must be enabled and running.
7. The webcam must be focused on the student taking the class, module and final exam at all times.
8. The student's face must be positioned in the center of the webcam view and must be visible throughout the duration of the class, module and final exam.
9. Nothing may cover the lens of the webcam at any time during the class, module and final exam.
10. The student must face the webcam during the class, module and final exam constantly.
11. Wearing earplugs or headphones is not allowed.
12. There may not be any other people in the student's room.
13. There may not be other computers or similar devices running in the student's room.

14. Lighting must be “daylight” quality and overhead. If overhead lighting is not possible, the source of light should not be behind the student.

15. On the desk or other workplace, there may not be anything except a computer/tablet/cell phone and, in case the computer/tablet/cell phone does not have an internal webcam, an external web camera. All other materials have to be removed, unless explicitly permitted (ID card, passport and credit book).

Credit and Final Exam rules:

16. The teacher doesn’t have to interpret given questions for the student as class, module and final exam questions require the student to make his/ her own interpretations or assumptions.

17. The question review is not allowed, providing no opportunity to change student answers.

18. The student doesn’t have to receive assistance from the teacher, or anyone else, during the class, module and final exam.

19. The student doesn’t have to repeat questions of the teacher out loud.

20. The student cannot access any resources during the class, module and final exam. This means no resources of any kind are allowed, including external websites, other software applications, or any other hardcopy resources. All other web browser tabs must be closed during the class, module and final exam. Cell phones and all other electronic devices must be turned off for the class, module and final exam.

21. The student may not leave the room after starting the class, module and final exam. Everything must be completed in one sitting. Restroom or other breaks aren’t allowed.

22. The class, module and final exam has a specific amount of time allotted (max 15 minutes for each student) and a specific number of questions (2 questions for class and 3 questions for module and final exam).

23. Questions must be answered orally. No keyboard is required and typing is not allowed.

24. The student has to answer the teacher's questions immediately without any hesitation.

Cheating:

25. Cheating is a serious offence and subject to disciplinary action under Code of Ethics. Any evidence of cheating that occurs during the class, module and final exam would be noted in detail by the teacher. The teacher, who becomes aware that the student may have cheated or have failed to follow the rules in any way, is obligated to notify the Head of Department and Dean Office.

Examples of the cheating are:

- Any recording of the screens, including taking screenshots, pictures, or video.
- Copying the questions or answers.
- Leaving mobile devices/smart phones, other web browsers, software applications, or other computers on during the class, module and final exam.
- Having access to or consulting notes or books during the class, module and final exam.
- Allowing other individuals to be present, to come in and out of the room during the class, module and final exam.
- Talking or otherwise communicating with another person during the class, module and final exam.
- Arranging to have another person take a class, module and final exam for the student.

Breaking the class, credit and final exam rules:

26. If the student breaks the Rules, the student can be excluded from participating or continuing the class, module and final exam. The teacher may also decide to nullify, not assess and/or not establish a result for the (partially) completed class, module and final exam.

Електронне навчальне видання комбінованого використання
Можна використовувати в локальному та мережному режимі

Проценко Олена Сергіївна
Ткаченко Наталія Олександрівна

ПАТОМОРФОЛОГІЯ

Методичні рекомендації
для студентів III курсу медичного факультету

В авторській редакції

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