

MINISTRY OF HEALTH OF UKRAINE
KHARKIV NATIONAL MEDICAL UNIVERSITY

Department of Pathological Anatomy and Department of General and Clinical Pathophysiology
named after D.O. Alpern

Academic year 2022-2023

SYLLABUS OF THE EDUCATIONAL COMPONENT
«PATHOMORPHOLOGY AND PATHOPHYSIOLOGY»

Normative or selective educational component – normative

The form of education – full-time

Field of knowledge - 22 "Health care"

Specialty - 223 "Nursing"

Specialization (if available) –


Educational and professional program - "Nursing" of the first (bachelor) level of higher education

Course - II

The syllabus of the educational component
approved at the meeting of Department of
Pathological Anatomy

Protocol from
"29" June 2022, № 13

Acting Head of the Department

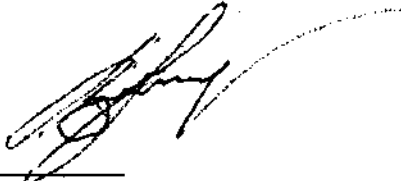


prof. I.V. Sorokina

Approved by the methodical
commission of KhNMU on problems of
general training

Protocol from
"30" June 2022, № 5

Head of Commission

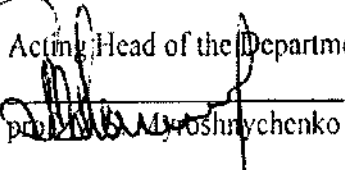


prof. O.Y. Vovk

The syllabus of the educational component
approved at the meeting of Department of
General and Clinical Pathophysiology
named after D.O. Alpern

Protocol from
"29" June 2022, № 13

Acting Head of the Department



prof. M.B. Myroshnychenko

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Off-line consultations: by prior arrangement;

On-line consultations: platform according to the schedule;

Location: classes are held in the conditions of the department of pathological anatomy and Department of General and Clinical Pathophysiology named after D.O. Alpern of KhNMU, remotely – y Google Meet, Microsoft Teams Meeting, Moodle, ZOOM.

INTRODUCTION

The syllabus of the educational component "Pathomorphology and Pathophysiology" is made in accordance with the educational and professional program (hereinafter referred to as the EPP) and the Standard of Higher Education of Ukraine (hereinafter referred to as the Standard), the first (bachelor's) level of higher education, field of knowledge 22 "Health Care", specialty 223 "Nursing".

Description of the educational component (abstract). The educational component "Pathomorphology and Pathophysiology" is taught to second-year education seekers for two semesters. 5.0 ECTS credits – 2.5 ECTS credits – 75 hours (38 classroom hours and 37 hours of independent education seeker work) are assigned to the study of the educational component. The educational component program is structured into two sections. is an integral part (third section) of the educational component "Pathomorphology and Pathophysiology", which involves the application of knowledge acquired by education seekers in the study of basic pathological physiology in practical work in hospital conditions with the aim of deepening and systematization knowledge in the field of current topics pathophysiology of organs and systems.

The subject of the study of Pathomorphology is the structural basis of human diseases for the in-depth study of the fundamental foundations of medicine and the clinical picture of illnesses with further use of the acquired knowledge in practical work. The subject of Pathophysiology are patterns (primarily of a functional nature), there are general laws, primarily of a functional nature, which study the course of the disease, mechanisms of resistance, recovery and termination of the disease.

Interdisciplinary connections based on education seekers' study of the basics of medical biology and microbiology, human anatomy, integrated with these educational components; it lays the foundations for education seekers to study physiology, biochemistry, propaedeutics of clinical educational components, which involves the integration of teaching with these educational components and the formation of skills to apply pathomorphology knowledge in the process of further education and professional activity.

Prerequisites. Human anatomy, physiology, basics of medical biology and microbiology, propaedeutics of internal medicine, general surgery. The content of the program in clinical pathophysiology involves the use of knowledge, skills and abilities in normal anatomy and physiology, pathological anatomy, medical biology, micro-biology, medical informatics, basics of biophysics, biochemistry, medical genetics, pharmacology, epidemiology and principles of evidence-based medicine, emergency and emergency medical care, history of medicine, philosophy. In turn, knowledge of pathophysiology is professionally integrated into special clinical educational components.

Postrequisites. Nursing in Internal Medicine, Nursing in Pediatrics, Nursing in Surgery and Oncology, Nursing in Insectology, Nursing in Obstetrics and Gynecology, Nursing in Family Medicine. The study of the educational component involves the use of skills and abilities of search, critical perception, analysis and evaluation of sources of information, discussion, dialogue, oral and written argumentation, public speeches in the study of related educational components during 4 years of study; is the basis for preparation for the EDKI licensing exam, preparation for study in higher education institutions in the programs of the third educational and scientific level of higher education.

Educational component page in the Moodle system: Pathomorphology <http://distance.knmu.edu.ua/mod/page/view.php?id=47744>
Pathophysiology <https://distance.knmu.edu.ua/enrol/index.php?id=4267>

1. THE PURPOSE AND TASK OF THE EDUCATIONAL COMPONENT

1.1. The purpose of studying the educational component "Pathomorphology and Pathophysiology" is the microscopic and ultramicroscopic structure of the structures of the human body, their development and changes in various life conditions. The purpose of studying the educational component is to teach education seekers a set of medical knowledge for a better understanding of the mechanisms of occurrence and development of pathological changes that occur in the patient's body. A modern specialist must have a sufficient amount of knowledge in pathological physiology and be able to use the acquired skills in practical work. Knowledge and understanding of the mechanism of disease development will help to adequately select the means and methods of physical rehabilitation, promoting faster recovery.

The ultimate goals of studying pathophysiology: A modern specialist must possess a sufficient amount of knowledge on pathological physiology, and be able to use the acquired skills in practical work. Knowledge and understanding of the mechanism of disease development will help to adequately choose means and methods of physical rehabilitation, contributing to faster recovery.

1.2. The main tasks of studying the educational component are the study of typical general pathological processes, the totality of which determines the morphological manifestations of diseases, the study of the structural basis of the development of diseases and their clinical manifestations, the structural basis of recovery, complications and consequences. To study the methods of pathomorphological examination: autopsy, biopsy, examination of biopsy material. Acquisition by education seekers of theoretical bases and formation at education seekers of scientifically substantiated modern representations about a disease, the mechanism of development of this or that pathological condition; the concept of etiology and pathogenesis, causation; patterns of disease development and types of solutions. Formation of education seekers' scientific worldview, education of a harmoniously developed personality that has perfect professional knowledge of a doctor. In the professional aspect, pathological physiology in the process of training specialists faces important didactic tasks in the formation of knowledge and skills.

1.3. Competencies and learning outcomes, the formation of which is facilitated by the educational component (interrelationship with the normative content of the training of higher education education seekers, formulated in terms of learning outcomes in the EPP and the Standard).

1.3.1. The study of the educational component ensures that education seekers acquire the following **competencies**:

integral: The ability to solve typical and complex specialized tasks and practical problems in the learning process, which involves research and/or innovation and is characterized by the complexity and uncertainty of conditions and requirements.

general:

GC 3. The ability to think abstractly, analyze and synthesize.

GC 4. Ability to apply knowledge in practical situations.

GC 5. Knowledge and understanding of the subject area and understanding of professional activity.

GC 6. Ability to communicate in the state language both verbally and in writing.

GC 10. The ability to make sound decisions.

special (professional, subject):

PC 02. The ability to recognize and interpret signs of health and its changes, illness, other validity (assessment/diagnosis), restrictions on the possibility of full-fledged life activities and to determine the problems of patients with various diseases and conditions.

PC 04. Application of professional skills (skills), medical devices, interventions and actions to ensure the patient/client's dignified treatment, privacy (intimacy), - confidentiality, protection of

his rights, physical, psychological and spiritual needs on the basis of transcultural nursing, tolerant and non-judgmental behavior.

PC 05. The ability to effectively use a complex of nursing skills (skills), medical devices, intervention and actions to provide medical care based on a holistic (whole) approach, considering satisfaction of the patient's needs for comfort, nutrition, personal hygiene and the ability of the person to meet his daily needs.

PC 06. The ability to effectively apply a set of professional skills (skills), medical devices, interventions and actions in assessing the functional state of patients/clients, preparing them for diagnostic examinations and taking biological material for laboratory examinations.

PC 12. The ability to navigate in determining the group belonging of drugs, the peculiarities of their pharmacokinetics and pharmacodynamics.

PC 13. The ability to identify the relationship between clinical manifestations of diseases and the results of additional research methods.

PC 14. Ability to organize and provide emergency care in various acute conditions.

1.3.2. The study of the educational component ensures that education seekers acquire the following **learning program results**:

LPR 1 Conduct a nursing subjective and objective examination of various organs and systems of the patient and evaluate the obtained data. In the conditions of health care institutions and at home, by communicating with patients of different age groups, their relatives or people from the close environment of a sick child and his parents, be able to collect complaints, history of illness, and life history, allergological anamnesis, epidemiological anamnesis, evaluate anamnestic data.

LPR 3 Plan nursing interventions. In the conditions of health care institutions, at home and under unpredictable circumstances, be able to make a plan of nursing interventions to solve real and accompanying problems of patients of various ages.

1.3.3. The study of the educational component ensures that education seekers acquire the following **social skills (soft skills)**:

Ability to abstract thinking, analysis and synthesis, ability to learn and be modernly trained; apply knowledge in practical situations; the ability to adapt and act in a new situation, to make a reasoned decision; work in a team; interpersonal skills. Ability to communicate in the state language (verbally, written); use of information and communication technologies; communication and teamwork (implemented through: the method of group work and brainstorming during the analysis of clinical cases, the method of presenting the results of independent work and their defense in the group), conflict management (implemented through: business games), time management (implemented through: the method of self-organization during classroom work in groups and independent work), leadership skills (implemented through: the method of presenting the results of independent work and their protection in the group). The ability to act socially responsibly and consciously.

2. INFORMATION VOLUME OF THE EDUCATIONAL COMPONENT

Name indicators	Field of knowledge, specialty, educational level, EPP	Characteristics of the academic component	
		full-time education	
Number of credits – 5	Field of knowledge 22 «Health care» (code and name)	Normative (selective)	
The total number of hours – 75	Specialty: 223 “Nursing” (code and name) Specialization: _____	Year of training (course):	
		2-nd	-
		Semester	
		3-rd	4 th
		Lectures	
Hours for daytime (or evening) study: classroom – 38 independent education seeker work – 75	Educational level: of the first (bachelor) level of higher education, 2 year of study EPP "Nursing"	14 h.	14 h.
		Practical, seminar	
		24 h.	24 h.
		Laboratory	
		h.	h.
		Independent work	
		37 h.	37 h.
		Individual tasks: h.	
Type of final control: differentiated credit			

2.1 DESCRIPTION OF THE EDUCATIONAL COMPONENT

2.2.1 Lectures

№ in order	Name of topic	Number of hours	Types of lectures
	CHAPTER 1: Pathomorphology		
1	Subject, tasks and methods of pathomorphology. The concept of morphogenesis, pathogenesis and nosology. Alteration, causes, mechanisms of development. Dystrophies, types, significance for the body.	2	Introductory lecture with visualization in the form of a multimedia presentation Thematic lecture with visualization in the form of a multimedia presentation
2	Blood circulation disorders. Types, causes and mechanisms of development.	2	
3	Inflammation, etiology and pathogenesis, classification. Types of inflammation. Complication. Causes of death.	2	
4	Tumor growth, signs, types of tumor growth. Carcinogenic factors. Metastasis. The effect of a tumor on the human body.	2	
5	Pathomorphology of diseases of the organs of the cardiovascular system: atherosclerosis, hypertension, ischemic heart disease, cerebrovascular diseases.	2	
6	Infectious diseases. Etiology and course of infectious processes. Intestinal infections.	2	
7	Tuberculosis.	2	

	Altogether	14	
	CHAPTER 2: Pathological physiology		
1	The subject and tasks of pathophysiology. Methods of pathophysiological studies. The doctrine of disease, etiology and pathogenesis. Pathology of reactivity. Violation of the immune system.	2	Thematic with visualization in the form of a multimedia presentation
2	Allergy. Etiology, pathogenesis, clinical manifestations. Autoimmune diseases.	2	
3	Inflammation: types, manifestations. Etiology, pathogenesis of acute and chronic inflammation.	2	
4	Pathophysiology of the blood system. Erythrocytosis. Anemia. Leukocytosis, leukopenia. Leukosis. Violation of the hemostasis system.	2	
5	Pathophysiology of the circulatory system. Heart failure. Vascular pathophysiology. Arterial hypertension. Atherosclerosis.	2	
6	Pathophysiology of kidneys and urination. Renal failure: acute and chronic.	2	
7	Pathophysiology of extreme conditions: etiology, pathogenesis. Shock. Collapse, Coma. Pathophysiology of modern combat trauma.	2	
	Altogether	14	

2.2.2 Seminar classes

№ in order	Name of topic	Number of hours	Teaching methods	Control forms
1				
2				
	Total hours			

2.2.3 Practical classes

№ in order	Name of topic	Number of hours	Teaching methods	Control forms
	CHAPTER 1: Pathomorphology			
1	Subject, tasks and methods of pathomorphology. The concept of morphogenesis, pathogenesis and nosology. Alteration, causes, mechanisms of occurrence.	2	story-explanation, demonstration	oral interview (individual and face-to-face), written interview; test control
2	Necrosis, its signs, types, causes, outcomes. Regeneration, its types, regeneration of individual tissues and organs. Wound healing.	2		
3	Blood circulation disorders. Types, causes and mechanisms of development.	2		
4	Inflammation, etiology and pathogenesis, classification. Types of	2		

	inflammation. Morphology of exudative inflammation. Complication. Causes of death.			
5	Tumors from epithelial tissue.	2		
6	Hemoblastosis: acute and chronic.	2		
7	Pathomorphology of diseases of the organs of the cardiovascular system: atherosclerosis, hypertension, ischemic heart disease, cerebrovascular diseases.	2		
8	Pathomorphology of respiratory diseases.	2		
9	Pathomorphology of diseases of the gastrointestinal tract.	2		
10	Infectious diseases. Etiology and course of infectious processes. Intestinal infections.	2		
11	Tuberculosis.	2		
12	Differentiated credit	2		
	Total hours	24		
	CHAPTER 2: Pathological physiology			
1	Pathogenic effect on the body of physical factors (thermal factors, radiation energy, radiation sickness)	2	Story-explanation, illustration, business game, case-method sparring-partnership (in small groups of 3-4 people), interdisciplinary training and others.	Oral examination; written survey; test control; creative tasks.
2	Reactivity. Body barriers. Violation of phagocytosis. Immunological reactivity.	2		
3	Allergy.	2		
4	Violation of peripheral blood circulation and microcirculation	2		
5	Inflammation.	2		
6	Fever.	2		
7	Typical metabolic disorders: carbohydrate metabolism disorders. Pathology of water-salt exchange. Violation of the acid-base state.	2		
8	Changes in total blood volume. Qualitative and quantitative changes in erythrocytes and leukocytes. Erythrocytosis. Anemia. Leukosis.	2		
9	Pathophysiology of the circulatory system. Insufficiency of blood circulation. Heart failure. Arrhythmias of the heart. Coronary insufficiency.	2		
10	The pathophysiology of external respiration. Respiratory failure.	2		
11	Pathophysiology of the digestive system. Insufficiency of digestion. Pathophysiology of the liver. Liver failure.	2		
12	Pathophysiology of the endocrine and	2		

	nervous systems.			
	Altogether	48		

2.2.4. Laboratory classes

№ in order	Name of topic	Number of hours	Teaching methods	Control forms
1				
2				
	Total hours			

2.2.5. Individual work

№ in order	Name of topic	Number of hours	Teaching methods	Control forms
	CHAPTER 1: Pathomorphology			
1	Dystrophies, types, significance for the body.	4	Independent work of education seekers with literature, preparation of essays, Using test tasks for self-control	Oral examination; written examination; test control; abstracts; self control
2	Proliferative inflammation. Specific inflammation. Granulomatosis. Syphilis.	2		
3	Immunopathological processes: immediate and delayed hypersensitivity reactions. Immunodeficiency states.	2		
4	Adaptation and compensation processes.	2		
5	Tumor growth, signs, types of tumor growth. Carcinogenic factors. Metastasis. The effect of a tumor on the human body.	2		
6	Mesenchymal tumors. Tumors from melanin-forming, nervous tissue.	4		
7	Anemia.	2		
8	Pathomorphology of connective tissue diseases with autoimmunization.	2		
9	Pathomorphology of diseases of the liver and biliary tract.	2		
10	Pathomorphology of diseases of the organs of the genitourinary system. Ways of infection and outcomes of diseases.	2		
11	Pathomorphology of diseases of endocrine glands.	2		
12	Pathomorphology of diseases of pregnancy and the postpartum period. Pre- and perinatal pathology.	4		
13	Viral and childhood infections.	4		
14	Quarantine infections: sepsis, plague, tularemia, brucellosis, anthrax. AIDS. Preventive measures and outcomes of diseases.	3		
	Total hours	37		

CHAPTER 2: Pathological physiology				
1	Pathogenic effect of mechanical injury	2	Independent education seekers' work with literature, preparation essays. Using test tasks for self-control	Oral examination; written survey; test control; abstracts; self control
2	Pathogenic effect of chemical factors on the body	2		
3	Pathogenic effect of biological factors on the body	2		
4	Pathogenic effect of infrared and ultraviolet rays; electric current; atmospheric pressure	2		
5	The role of heredity, constitution, age-related changes in pathology	2		
6	Starvation	1		
7	Pathophysiology of the cell. Cell damage	2		
8	Pathophysiology of connective tissue	2		
9	Pathogenesis of aging	2		
10	Violation of energy exchange	2		
11	Violation of protein and fat metabolism	2		
12	Violation of microelements and vitamins metabolism	2		
13	Ulcer disease	2		
14	Pathophysiology of the pancreas	2		
15	Gallstone disease	2		
16	Portal hypertension syndrome	2		
17	Urinary stone disease	2		
18	Pathology of bone tissue	2		
19	Disorders of cerebral circulation	2		
	Total hours	74		

3. ASSESSMENT CRITERIA

3.1. The evaluation of the success of educational activities of education seekers is carried out on the basis of the current "Instructions for evaluating the educational activities of education seekers of higher education at the Kharkiv National Medical University", approved by the order of KhNMU dated August 21, 2021 No. 181.

Evaluation of general educational activity (GEA)

GEA is the educational activity of the education seeker during the entire period of studying the educational component, which ends with an assessment with the form of control "differentiated credit". GEA is considered completed if the higher education education seeker has completed all missed classroom classes and lectures, and the average score for all PC topics is equal to 3 points or higher. GEA points for educational component with the form of control "differentiated credit" are calculated as the arithmetic average of PC points for all topics during the entire period of study of the educational component (to the nearest hundredth) (table 1), automatically within the functionality of the electronic journal of the ASY. GEA is defined in points from 70 to 120.

Table 1

**Recalculation of the average grade for the current control into a multi-point scale
(for educational components ending with a differentiated assessment)**

4- point scale	120- point scale	4- point scale	120- point scale
5	120	3.91-3,94	94
4.95-4,99	119	3.87-3,9	93
4.91-4,94	118	3.83- 3,86	92
4.87-4,9	117	3.79- 3,82	91
4.83-4,86	116	3.74-3,78	90
4.79-4,82	115	3.7- 3,73	89
4.75-4,78	114	3.66- 3,69	88
4.7-4,74	113	3.62- 3,65	87
4.66-4,69	112	3.58-3,61	86
4.62-4,65	111	3.54- 3,57	85
4.58-4,61	110	3.49- 3,53	84
4.54-4,57	109	3.45-3,48	83
4.5-4,53	108	3.41-3,44	82
4.45-4,49	107	3.37-3,4	81
4.41-4,44	106	3.33- 3,36	80
4.37-4,4	105	3.29-3,32	79
4.33-4,36	104	3.25-3,28	78
4.29-4,32	103	3.21-3,24	77
4.25- 4,28	102	3.18-3,2	76
4.2- 4,24	101	3.15- 3,17	75
4.16- 4,19	100	3.13- 3,14	74
4.12- 4,15	99	3.1- 3,12	73
4.08- 4,11	98	3.07- 3,09	72
4.04- 4,07	97	3.04-3,06	71
3.99-4,03	96	3.0-3,03	70
3.95- 3,98	95	Less than "3"	Not enough

Conducting and evaluating differentiated credit (DC) (Tables 3, 4, and 7 from the "Instructions for evaluating the educational activity of education seekers of higher education at KhNMU).

DC in the educational component is a process during which the results received for the course (semester) are checked:

- level of theoretical knowledge;
- development of creative thinking;
- skills of independent work;
- competences - the ability to synthesize the acquired knowledge and apply it in solving practical tasks.

The department must provide the following materials for preparation for differentiated credit at the information stand:

- basic and anchor test tasks (LII "Krok");
- a list of theoretical questions (including questions from independent work);
- list of practical skills;
- list of macro- and microspecimens;
- criteria for assessing education seekers' knowledge and skills;
- schedule of education seekers working out classes during the semester;

- schedule of consultations on the subject throughout the semester;
- schedule of consultations before the DC.

Differentiated credit is conducted by the teacher of the group at the last practical class in the following order:

1. Solving a package of test tasks, which includes basic (anchor) test tasks of LII "Krok" in the amount of at least **30 tests**. The evaluation criterion is 95% of correctly solved tasks; "passed – not passed".

2. Assessment of the assimilation of practical skills and theoretical knowledge on all subjects of the educational component on the day of the DC.

The assessment of the development of practical skills and theoretical knowledge is carried out according to the cards compiled at the department according to the criteria for the assessment of practical skills and theoretical knowledge (Table 2).

Table 2

Evaluation of theoretical knowledge and practical skills, if they are presented in one card

Number of questions	«5»	«4»	«3»	The answer is for cards that include the theoretical and practical parts of the educational component	For each answer, the education seeker receives from 10 to 16 points, which corresponds to: «5» - 16 points; «4» - 13 points; «3» - 10 points.
1	16	13	10		
2	16	13	10		
3	16	13	10		
4	16	13	10		
5	16	13	10		
	80	65	50		

Educational component assessment. The grade for the educational component is defined as the sum of the points for the general educational activity and the points obtained directly on the differentiated credit.

The maximum number of points that an education seeker can score for studying an educational component is 200 points, including the maximum number of points for current educational activity – 120 points, as well as the maximum number of points based on the results of differentiated credit – 80 points. The minimum number of points is 120, including the minimum current educational activity – 70 and based on the results of differentiated credit – 50 points. Correspondence of scores on a 200-point scale, a four-point (national) scale, and the ECTS scale is shown in Table 3.

Table 3

Correspondence of estimates on a 200-point scale, four-point (national) scale and ECTS scale at KhNMU

Rating on a 200-point scale	Score for the ECTS scale	Score for four-point (national) scale
180–200	A	Excellent
160–179	B	Good
150–159	C	Good
130–149	D	Satisfactory
120–129	E	Satisfactory
Less than 120	F, Fx	Unsatisfactory

Evaluation of the results of education seekers' educational activities is carried out according to the criteria presented in Table 4.

**Criteria for evaluating the results of educational activities
of education seekers in educational components**

Mark	Assessment criteria
«Excellent»	The education seeker shows special creative abilities, knows how to independently acquire knowledge, finds and processes the necessary information without the help of a teacher, knows how to use the acquired knowledge and skills to make decisions in non-standard situations, convincingly argues answers, independently reveals his own gifts and inclinations
«Very good»	The education seeker is fluent in the studied amount of material, applies it in practice, freely solves exercises and problems in standard situations, independently corrects the mistakes made, the number of which is insignificant
«Good»	The education seeker is able to compare, summarize, systematize information under the guidance of the teacher; in general, independently apply it in practice; monitor own activities; to correct errors, including significant ones, to select arguments to support opinions
«Satisfactory»	The education seeker reproduces a significant part of the theoretical material, demonstrates knowledge and understanding of the main provisions; with the help of the teacher, he can analyze the educational material, correct errors, among which there are a large number of significant ones
«Enough»	The education seeker possesses educational material at a level higher than the initial level, and reproduces a significant part of it at the reproductive level
«Unsatisfactory» with the possibility of retaking the semester control	The education seeker possesses the material at the level of individual fragments, which constitute a small part of the educational material
«Unsatisfactory» with mandatory repeated study of credit	The education seeker possesses the material at the level of elementary recognition and reproduction of individual facts, elements, objects
In particular, the criteria for evaluating practical skills in educational components	
«Excellent»	The education seeker corresponds to a high (creative) level of competence: the education seeker shows special creative abilities, independently demonstrates the implementation of practical skills without errors and possesses systematic theoretical knowledge (knows the method of performing practical skills, indications and contraindications, possible complications, etc.) and has the ability to accept solutions in non-standard situations.
«Good»	The education seeker independently demonstrates the performance of practical skills, admitting some inaccuracies, which he quickly corrects, possesses theoretical knowledge (knows the methodology of performing practical skills, indications and contraindications, possible complications, etc.)
«Satisfactory»	The education seeker demonstrates the performance of practical skills, making some mistakes that can be corrected when corrected by the teacher, possesses satisfactory theoretical knowledge (knows the basic provisions of the methodology for performing practical skills, indications and contraindications, possible complications, etc.).

«Unsatisfactory»	The education seeker cannot independently demonstrate practical skills (performs them, making gross mistakes), does not have a sufficient level of theoretical knowledge (does not know the methods of performing practical skills, indications and contraindications, possible complications, etc.).
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Educators who have fulfilled the requirements of the programs of educational educational components and were allowed to take the differentiated credit, but did not pass it or did not appear, are assigned a grade of Fx.

3.2. Questions to the differentiated credit: List of theoretical questions for differentiated credit:

1. Subject, tasks and methods of pathomorphology. The concept of morphogenesis, pathogenesis and nosology. Alteration, causes, mechanisms of development. Dystrophies, types, significance for the body. 2. Necrosis, its signs, types, causes, outcomes. Regeneration, its types, regeneration of individual tissues and organs. Wound healing. 3. Disturbances of blood circulation. Types, causes and mechanisms of development. 4. Inflammation, etiology and pathogenesis, classification. Types of inflammation. Exudative inflammation. Morphology of exudative inflammation. Complication. Causes of death. 5. Proliferative inflammation. Specific inflammation. Granulomatosis. Syphilis. 6. Immunopathological processes: immediate and delayed hypersensitivity reactions. Immunodeficiency states. 7. Tumor growth, signs, types of tumor growth. Carcinogenic factors. Metastasis. The effect of a tumor on the human body. 8. Mesenchymal tumors. Tumors of melanin-forming and nervous tissue. 9. Tumors from epithelial tissue. 10. Hemoblastosis: acute and chronic. Anemia. 11. Pathomorphology of diseases of the cardiovascular system: atherosclerosis, hypertension, ischemic heart disease, cerebrovascular diseases. 12. Pathomorphology of connective tissue diseases from autoimmunization. 13. Pathomorphology of respiratory diseases. 14. Pathomorphology of diseases of the gastrointestinal tract, liver, biliary tract and endocrine glands. 15. Pathomorphology of diseases of the organs of the genitourinary system. Ways of infection and outcomes of diseases. 16. Pathomorphology of diseases of pregnancy and the postpartum period. Pre- and perinatal pathology. 17. Infectious diseases. Etiology and course of infectious processes. Intestinal infections. 18. Viral and childhood infections. 19. Tuberculosis. 20. Quarantine infections: sepsis, plague, tularemia, brucellosis, anthrax. AIDS. Preventive measures and outcomes of diseases.

The list of practical skills for differentiated credit:

1. Describe macrospecimen:

1. Gangrene of the foot. 2. Hemorrhagic lung infarction. 3. Gallbladder stones. 4. Parietal aortic thrombus. 5. Hemorrhage in the brain. 6. Fibrinous pericarditis. 7. Purulent leptomeningitis. 8. Primary tuberculosis complex. 9. Fibrous-cavernous tuberculosis of the lungs. 10. Phlegmonous appendicitis. 11. Stomach cancer. 12. Melanoblastoma of the skin. 13. Atherosclerosis of the aorta. 14. Croupous pneumonia. 15. Chronic stomach ulcer. 16. Typhoid fever. 17. Myocardial infarction. 18. Diphtheria of the pharynx.

2. Describe microspecimen:

4. Thrombophlebitis. 7. Hemorrhagic lung infarction. 22. Emphysema of the lung. 36. Hyalinosis of the vessels of the spleen. 38. Amyloidosis of the spleen (sago / sebaceous). 43. Obesity of the heart. 44. Fatty liver dystrophy. 67. Liver with mechanical jaundice. 75. Tuberculous lymphadenitis. 86. Fibrinous / fibrinous-purulent pericarditis. 90. Croupous pneumonia. 94. Diphtheria of the larynx. 97. Cardiosclerosis post-infarction / interstitial. 165. Skin papilloma. 169. Squamous keratinized skin cancer. 184. Myocardial infarction. 194. Rapidly progressive (with crescents) glomerulonephritis. 201. Tuberculosis focus that has healed (Gon's focus). 207. Chronic stomach ulcer. 208. Phlegmonous appendicitis. 229. Remains of abortion.

3.3. Control questions

Theoretical questions:

1. Necrosis, clinical and morphological forms. 2. Types of arterial hyperemia. 3. Types of venous hyperemia. 4. Thrombosis, types of blood clots. 5 Thromboembolism, its types. 6. Types of exudative inflammation. 7. Types of proliferative inflammation. 8. Types of wound healing. 9. Differences between benign and malignant tumors. 10. Tumors from the epithelium (benign and malignant). 11. Tumors of the connective tissue (benign and malignant). 12. Atherosclerosis, clinical and morphological forms. 13. Ischemic heart disease, classification. 13. Hypertensive disease, clinical and morphological forms. 14. Croupous pneumonia. 15. Chronic gastritis. 16. Ulcer disease of the stomach and duodenum. 17. Acromegaly. 18. Typhoid fever. 19. Diphtheria. 20. Scarlet fever. 21. Tuberculosis. Sepsis.

Practical skills:

1. Describe macrospecimen:

1. Gangrene of the foot. 2. Fibrinous pericarditis. 3. Phlegmonous appendicitis. 4. Melanoblastoma of the skin. 5. Atherosclerosis of the aorta. 6. Chronic stomach ulcer. 7. Primary tuberculosis complex.

2. Describe microspecimen:

4. Thrombophlebitis. 22. Emphysema of the lung. 44. Fatty liver dystrophy. 75. Tuberculous lymphadenitis. 184. Myocardial infarction. 207. Chronic stomach ulcer. 208. Phlegmonous appendicitis. 229. Remains of abortion.

3.4. Individual tasks

Assessment of individual education seeker tasks is carried out based on the performance of tasks by the teacher:

- presentation of an essay at a practical class 0-2 points;
- a report with a presentation at a practical class 0-3 points,
- presentation at scientific and practical conferences of the department, university, writing theses, articles 0-5 points;

Points for the education seeker's individual tasks (in total no more than 10 points) can be added as encouraging additional points to the final score for the current educational activity, calculated using table 2 and included in the grade for the educational component.

3.5. Rules for appeal of assessment

http://files.knmu.edu.ua:8181/upload/redakt/doc_uchproc/polog_komis_ad_text.pdf

4. POLICY OF EDUCATIONAL COMPONENT

The education seekers are obliged to systematically master the theoretical knowledge and practical skills provided for in the curriculum of the educational component; always have a neat appearance (white coat, cap); turn off mobile devices during practical classes and lectures; to follow the rules of the internal procedure of the KhNMU.

During classes, it is allowed to leave the audience for a short time if necessary and with the teacher's permission; drink soft drinks; take photos of presentation slides; take an active part in the course of the lesson; it is forbidden to eat (with the exception of persons whose special medical condition requires otherwise - in this case, medical confirmation is required); smoke, use alcoholic and even low-alcohol drinks or narcotics; speak obscenely or use words that insult the honor and dignity of colleagues and professors and teaching staff; to gaff; to cause damage to the material and technical base of the university (to damage inventory, equipment, furniture, walls, floors, to litter the premises and territories); making noise, shouting or listening to loud music in the classrooms and even in the corridors during classes. Education seekers are not allowed to be late for practical classes and lectures. During the lecture, education seekers are recommended to keep a summary of the lesson and maintain a sufficient level of silence. Asking questions to the lecturer is absolutely normal. Practical classes involve active participation during the discussion in the classroom, education seekers should be ready to understand the material in detail, ask questions, express their point of view, and discuss. During the discussion, the following are important: respect for colleagues, tolerance for others and their experiences, receptivity and

impartiality, the ability to disagree with an opinion but respect the personality of the opponent, thorough reasoning of one's opinion and the courage to change one's position under the influence of evidence, self-expression when a person avoids unnecessary generalizations, describes his feelings and formulates his wishes based on his own thoughts and emotions, familiarity with primary sources is mandatory. A creative approach in its various manifestations is welcome. Education seekers are expected to be interested in participating in city, all-Ukrainian and international conferences, competitions and other events related to the subject profile.

Attending practical classes and lectures is obligatory. Missing practical classes will be worked off to the teacher of the group or the teacher on duty. Practices and consultations are held daily from 15.00 to 17.00 and on Saturdays in accordance with the "Regulations on the procedure for education seekers to practice classes" dated 07.12.2015 No. 415. Missed lectures are worked off to the lecturer or group teacher by writing an essay and orally answering questions on the topic of the missed lecture.

During the practical class, the monitor of the group appoints another education seeker who must provide the group with microscopes and microspecimens in accordance with the topic of the lesson before the start of the session and is responsible for the cleanliness and order in the classroom and the preservation of equipment, micro- and macrospecimens.

During the control of the knowledge of the education seekers, writing off, using various software tools, hints, using a mobile phone or other electronic devices are not allowed.

Education seekers with special needs must notify the teacher before the start of classes, the monitor of the group can do this at the education seeker's request. If the education seeker has any questions, he can always solve them first of all with the teacher or head of the department, if necessary.

Occupational Health:

At the first class of the course, the basic principles of labor protection will be explained by meaning of appropriate instruction. Everyone is expected to know where the nearest exit to the audience is, where the fire extinguisher is, how to use it, etc.

5. ACADEMIC INTEGRITY

The Pathological Anatomy Department maintains zero tolerance for plagiarism. Educators are expected to want to constantly improve their own awareness in academic writing. In the first classes, information activities will be held on what exactly is considered plagiarism and how to correctly conduct a research and scientific search.

http://files.knmu.edu.ua:8181/upload/redakt/doc_uchproc/polog_ad_etyka_text.pdf

http://files.knmu.edu.ua:8181/upload/redakt/doc_uchproc/polog_komis_ad_text.pdf

- Order No. 305 dated 08/27/19 regarding the organization of the educational process at KhNMU.
- Code of academic integrity of the KhNMU.
- Order No. 165 dated 07/02/2020 on measures to develop the system of academic integrity at KhNMU.
- Regulations on academic integrity.
- Provisions on the Commission on Academic Integrity, Ethics and Conflict Management of KhNMU.
- Recommendations of the National Agency for Quality Assurance of Higher Education.
- Law of Ukraine "On Education", Article 42.

6. RECOMMENDED LITERATURE

Basic

1. Струков А.И. Патологична анатомія: підручник : пер. з рос. / А.И. Струков, В. В. Серов. - 4-е вид.. - Х. : Факт, 2004. - 864 с.

2. Патоморфологія: нац. Підруч. / В.Д. Марковський, В.О. Туманський, І.В. Сорокіна та ін., за ред. В.Д.Марковського, В.О.Туманського. — К.: ВСВ «Медицина». 2015 — 936с., кольор. вид. ISBN 978-617-505-450-5
3. Robbins Pathology basis of disease / V. Kumar, A.K. Abbas, N. Fausto, J.C. Aster. — 8th ed., 2010. — 1450 p.
4. Pathophysiology: The Biologic Basis of Disease in Adults and Children / Edited by K.L. McCance, S.E. Huether. — 4th ed., 2002. — 1423 p.
5. General and Clinical Pathophysiology / Edited by A.V. Kubyshkin. — Vinnitsia: Nova Knyha Publishers, 2011. — 656 p.
6. Pathophysiology – Патофізіологія / Н.В. Сімеонова; за науковою редакцією В.А. Міхньова. — К.: ВСВ «Медицина», 2010. — 544 с.
7. Exercise book on pathophysiology / Authors: prof. O.V. Nikolaeva, prof. A.N. Shevchenko, prof. Ye.A. Pavlova.- Kharkov: KNMU, 2017.
8. Патофізіологія: Підручник / Ю.В. Биць, Г.М. Бутенко, А.І. Гоженко та ін.; За ред. М.Н. Зайка, Ю.В. Биця, М.В. Кришталя. —4-е вид.,перероб. І допов. - К.: ВСВ «Медицина», 2014.-752с.

Supporting literature

1. Патологічна анатомія (загальнопатологічні процеси) / В.М. Благодаров, П.І. Червяк, К.О. Галахін, Л.О. Стеченко, В.А. Діброва, МБ. Хомінська, М.А. Конончук (за ред. В.М. Благо дарова та П.І. Червяка). —К.: Генеза, 1997.
2. Ataman O.V. Pathophysiology: textbook: in 2 volumes / O.V. Ataman. — Vinnitsia: Nova Kniga, 2012. — Т. 1. General pathology. - 2012. - 579 p.
3. Атаман О. В. Патофізіологія: підручник: в 2 т. Т. 2. / О.В. Атаман. — Вінниця: Нова Книга О.В. Атаман. — Вінниця: Нова Книга, 2016. — 448 с.

INFORMATION RESOURCES

1. Link to the page of the academic educational component in MOODLE Pathomorphology <http://distance.knmu.edu.ua/course/view.php?id=3750>
Pathological physiology <https://distance.knmu.edu.ua/enrol/index.php?id=4267>
2. University websites and electronic resources of the "Internet" network
3. Testing center – database of licensing test tasks "Krok-1" <http://library.med.utah.edu/WebPath/webpath.html>
4. <http://www.webpathology.com/>
5. <https://www.geisingermedicallabs.com/lab/resources.shtml>
6. the website of the Scientific Library of the KhNMU <http://libr.knmu.edu.ua>
7. <http://repo.knmu.edu.ua/handle/123456789/15755>
8. <http://repo.knmu.edu.ua/handle/123456789/22731>
9. <http://repo.knmu.edu.ua/handle/123456789/8974>
10. <http://repo.knmu.edu.ua/handle/123456789/15>
11. <http://repo.knmu.edu.ua/handle/123456789/21865>
12. <http://repo.knmu.edu.ua/handle/123456789/13705>
13. <http://repo.knmu.edu.ua/handle/123456789/1371>
14. <http://repo.knmu.edu.ua/handle/123456789/13723>
15. <http://repo.knmu.edu.ua/handle/123456789/13751>
16. <http://repo.knmu.edu.ua/handle/123456789/137>
17. <http://repo.knmu.edu.ua/handle/123456789/13772>
18. <http://repo.knmu.edu.ua/handle/123456789/1377>
19. <http://repo.knmu.edu.ua/handle/123456789/13774>
20. <http://repo.knmu.edu.ua/handle/123456789/1377>
21. <http://repo.knmu.edu.ua/handle/123456789/13771>

Educational component page in the Moodle system:

Pathomorphology <http://distance.knmu.edu.ua/mod/page/view.php?id=47744>

Pathological physiology <https://distance.knmu.edu.ua/enrol/index.php?id=4267>

8. OTHER

Useful links:

Provisions on the prevention, prevention and settlement of cases related to sexual harassment and discrimination at KhNMU

http://files.knmu.edu.ua:8181/upload/redakt/doc_uchproc/polog-sex.doc

Regulations on academic integrity and ethics of academic relationships at Kharkiv National Medical University

http://files.knmu.edu.ua:8181/upload/redakt/doc_uchproc/polog_ad_etyka_text.pdf

The procedure for conducting classes on in-depth study by education seekers of the Kharkiv National Medical University of individual educational components beyond the scope of the curriculum http://files.knmu.edu.ua:8181/upload/redakt/doc_uchproc/nak-poriad-pogl-vyv-dysc.docx

Regulations on the Commission on Academic Integrity, Ethics and Conflict Management of the KhNMU

http://files.knmu.edu.ua:8181/upload/redakt/doc_uchproc/polog_komis_ad_text.pdf

Regulations on the recognition of the results of non-formal education at the Kharkiv National Medical University

http://files.knmu.edu.ua:8181/upload/redakt/doc_uchproc/polog_neform_osv.pdf

INCLUSIVE EDUCATION:

http://www.knmu.kharkov.ua/index.php?option=com_content&view=article&id=7108%3A2021-03-10-14-08-02&catid=12%3A2011-05-10-07-16-32&Itemid=33&lang=uk

ACADEMIC INTEGRITY:

http://www.knmu.kharkov.ua/index.php?option=com_content&view=article&id=2520%3A2015-04-30-08-10-46&catid=20%3A2011-05-17-09-30-17&Itemid=40&lang=uk

http://files.knmu.edu.ua:8181/upload/redakt/doc_uchproc/kodex_AD.docx