




ONTÜSTIK-QAZAQSTAN <b>MEDISINA AKADEMIASY</b> «Оңтүстік Қазақстан медицина академиясы» АҚ		 SOUTH KAZAKHSTAN <b>MEDICAL ACADEMY</b> АО «Южно-Казахстанская медицинская академия»
Department of Pathology and Forensic Medicine		044-53/11 ( )
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**Syllabus**  
**Department of Pathology and Forensic Medicine**  
**Working programme of the “General Pathological Physiology” discipline**  
**Educational programme 6B10101 «General medicine»**


1.	General information about the course		
1.1	Disciplinecode: OP 3201-2	1.6	Academic year: 2023-2024
1.2	Name of discipline: General pathological physiology	1.7	The year of study: 3 <sup>rd</sup>
1.3	Prerequisites: Molecular biology and medical genetics; fundamentals of morphology and physiology; medical biochemistry; microbiology and immunology.	1.8	Semester:5
1.4	Postrequisites: Pathology of organs and systems	1.9	Course credits (ECTS): 5
1.5	Cycle:BD	1.10	Component:compulsory
2.	Course description		
General pathological physiology forms the student's knowledge of the general patterns of occurrence, development and outcome of pathological processes that form the basis of diseases, as well as their characteristic functional changes. The study of general pathological physiology enables the future specialist to demonstrate and apply the acquired knowledge in the diagnosis, treatment and prevention of diseases.			
3.	Forms of summative assessment		
3.1	MCQ test+	3.5	Coursework
3.2	Written test	3.6	Essay
3.3	Oral test	3.7	Project
3.4	OSPE/OSKE or Practical Skills Examination	3.8	Other
4.	Goals of the course		
* to develop students' knowledge of etiology and pathogenesis of typical pathological processes, principles of prevention and correction; * to develop in students the skills of pathophysiological analysis of the results of clinical and laboratory investigations.			
5.	Course outcomes(CO)		
CO1	Demonstrates knowledge of the subject and role of general pathology and master the basic concepts of general nosology		
CO2	Identifies pathological processes at the tissue and cellular level		
CO3	Evaluates the results of clinical and laboratory investigations		
CO4	Demonstrates and communicates own knowledge and skills to students and teachers when carrying out practical work or explaining theoretical material in general pathological physiology		

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CO5	Evaluates the results of experimental studies					
5.1	Course outcomes		Educational programme outcomes (EPO) connected with the course outcomes			
	CO 1 CO 2 CO 3		CO1. Demonstrates knowledge and understanding of the biomedical sciences for the diagnosis, treatment and follow-up of the most common diseases in adults and children.			
	CO 4		CO6. Communicates effectively in medical practice, taking into account the particularities of child and adult psychology, multiculturalism and the principles of medical ethics and deontology.			
	CO5		CO 8. Applies scientific principles, methods and knowledge to medical practice and research. Capable of continuous self-education and development. Able to introduce new methods into clinical practice.			
6.	Detailed information about the course					
6.1	Adress : South-Kazakhstan Medical Academy, Building №2, Department of Pathology and Forensic Medicine, Al-Pharabi square-3, 4 <sup>th</sup> floor. Telephone number: 40-82-06, ext.number 422, 423					
6.2	Number of hours	Lectures	Practical classes	Laboratory classes	SIW	SIWT
		15	35	-	70	30
7.	Information about lecturers					
№	Name	Degree and position	E-mail	Scientific interests	Achievements	
1.	Bissimbayeva Saule Babatovna	Candidate of Medical Sciences, acting docent	bisimbaeva@inbox.ru	Theme of the scientific direction «Өкпегуберкулезінің таралуы мен алдын алу»	Author 30 scientific publications, prepared 2 pre-patents, 1 patent, 1 monograph and 2 acts of implementation of the results of research work	

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2.	Kulbaliyeva Zhanat Zhaksilikovna	Candidate of Medical Sciences, acting docent	zhann_7@mail.ru	Theme of the scientific direction «Влияние свинца на окислительный ме-таболизм липидов и белков крови и его кор-рекциябиофеникол ем»	Author 38 scientific publications, 1 educational and methodical benefits, prepared 2 acts of implementati on of the results of scientific and research work and 3 acts of implementati on results of educational and methodical work
3.	Kerimov Rassim Azatovich	Master of Medical Sciences, Senior Lecturer	kir-2004@list.ru	Theme of the scientific direction «Diagnostic criteria and risk factors of the colorectal cancer»	Author of 25 scientific publications
4.	Ignatyeva Anastasia Sergeevna	Senior Lecturer	zhelonkina_88@mail.ru		
5.	Berdaliyeva Gulmira Bakhytkyzy	Senior Lecturer	Mira-3505@mail.ru	-	Author 2 scientific publications
6.	Sartaeva Ulzhalgas Spandiyarovna	Master of Medical Sciences, Lecturer	sartaeva.ulzhalgas@mail.ru	Theme of the scientific direction “Балалардың денсаулығын қалпына келтіруде отбасының қатысуын медициналық-элеуметтік тұрғыда бағалау”	Author 3 scientific publications
7.	Seydakbar Aisana Usenovna	Lecturer	aseyda kb ar@mail.ru	-	-

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8.	Kerimbekova Mariam Otelovna	Lecturer	-	-	-
9.	Zhumagul Kanagat Kopzhanovna	Master of Medical Sciences, Lecturer	zhkk_95@mail.ru	-	Author 3 scientific publications
10.	Duisembiyeva Zhazira Mereykizi	Lecturer	zhazira-0508@mail.ru	-	Author 3 scientific publications

8. Course content						
Week number	Topic	Summary	Cours e outcome	Number of hours	Forms/methods of learning	Forms/methods of estimation
1	Lecture. The subject, tasks and methods of Pathological Physiology. General Nosology	The subject, goals and tasks of Pathological Physiology. Methods of Pathophysiology. Basic concepts of General Nosology. Disease, concept, stages, outcomes.	CO1 CO2	1	Overview lecture	Blitz survey
	Practical class. The subject, tasks and methods of Pathological Physiology. General Nosology	The subject, goals and tasks of Pathological Physiology. Methods of Pathophysiology. Basic concepts of General Nosology. Disease, concept, stages, outcomes.	CO5 CO4	2	Practical work, solving situational tasks, oral questioning, MCQ	Check-list
	SIWT. Implementation advice of SIW 1. SIW assignment- Post-cardiac arrest syndrome	Pathophysiological basis of resuscitation. Post-cardiac arrest syndrome, concept, periods, principles of therapy, age features.	CO5	2/4	discussion, report	Checking the abstract for plagiarism, performing the presentation
2	Lecture. General Etiology and Pathogenesis	The concept of etiology and pathogenesis. Classification of etiological factors. The leading link and the "vicious circle" of pathogenesis. The mechanisms of recovery. Etiotropic and pathogenetic principles of the treatment of diseases. Age features	CO1 CO2	1	Overview lecture	-

		of the course of diseases.				
	Practical class. General Etiology and Pathogenesis	The concept of etiology and pathogenesis. Classification of etiological factors. The leading link and the "vicious circle" of pathogenesis. The mechanisms of recovery. Etiotropic and pathogenetic principles of the treatment of diseases. Age features of the course of diseases.	CO5 CO4	2	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	Check-list
	SIWT. Implementation advice of SIW 1. SIW assignment-Pre-disease, its detection by stress tests	Pre-disease, concept, conditions of occurrence, examples. Stress tests, types, mechanisms of influence on the body.	CO5	2/4	discussion, report	
3	Lecture. Role of Reactivity in Pathology	The concept of reactivity and resistance of the body. Types of reactivity and resistance, their determining factors. Pathological reactivity. A directed change in the reactivity and resistance of the body as a way of preventing and treating diseases. The role of the constitution and age in pathology.	CO1 CO2	1	Overview lecture	-
	Practical class. Role of Reactivity in Pathology	The concept of reactivity and resistance of the body. Types of reactivity and resistance, their determining factors. Pathological reactivity. A directed change in the reactivity and resistance	CO5 CO4	3	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	The general form of assessment, including the answers of individual and group testing, self- and mutual

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		of the body as a way of preventing and treating diseases. The role of the constitution and age in pathology.				assessment
	SIWT. Implementation advice of SIW. SIW assignment- Pathophysiological aspects of aging	Body aging. Theories of Aging. The mechanisms of aging. Changes in organs during aging. Principles for preventing premature aging.	CO5	2/4	discussion, report	
4	Lecture. The role of Heredity in Pathology	Classification of hereditary diseases. Mutations, types, causes, consequences. General mechanisms of occurrence, principles of diagnosis, prevention and therapy of hereditary diseases.	CO1 CO2	1	Overview lecture	-
	Practical class. The role of Heredity in Pathology	Classification of hereditary diseases. Mutations, types, causes, consequences. General mechanisms of occurrence, principles of diagnosis, prevention and therapy of hereditary diseases.	CO5 CO4	2	discussion, report	Check-list
	SIWT. Implementation advice of SIW. SIW assignment- Pathophysiological aspects of alcoholism, drug addiction, substance abuse	Etiopathogenesis of alcoholism. Somatic and neurological disorders in alcoholism. Types of addiction. Etiology and stages of development of drug addiction and substance abuse.	CO5	2/4	Preparation of an abstract with a check for plagiarism, presentation preparation and performing Pbl-1 Case-IHD	
5	Lecture. General pathology of the cell	Cell damage, concept, types, causes, general mechanisms, manifestations. Necrosis and apoptosis. Mechanisms for the protection and	CO1 CO2	1	Overview lecture	-

		adaptation of cells with damaging effects. Pathophysiological principles of preventive and therapeutic measures that increase the resistance of cells to the action of pathogenic factors.				
	Practical class. General pathology of the cell	Cell damage, concept, types, causes, general mechanisms, manifestations. Necrosis and apoptosis. Mechanisms for the protection and adaptation of cells with damaging effects. Pathophysiological principles of preventive and therapeutic measures that increase the resistance of cells to the action of pathogenic factors.	CO5 CO4	3	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	Check-list
	SIWT. Implementation advice of SIW. SIW assignment- Pathophysiology of Apoptosis	Apoptosis, concept, stage. Autonomous apoptosis. Differences between necrosis and apoptosis.	CO5	2/4	discussion, report	
6	Lecture. General reactions of the body to damage	The acute phase response, concept, causes, pathogenesis of manifestations. Stress, concept, stages, development mechanisms and manifestations. Shock, concept, types, general pathogenesis, stages. Coma, concept, types. Pathophysiological principles for the prevention and treatment of stress, shock and coma. Age features of the general	CO1 CO2	1	Overview lecture	-




		reactions of the body to damage.				
	Practical class. General reactions of the body to damage	The acute phase response, concept, causes, pathogenesis of manifestations. Stress, concept, stages, development mechanisms and manifestations. Shock, concept, types, general pathogenesis, stages. Coma, concept, types. Pathophysiological principles for the prevention and treatment of stress, shock and coma. Age features of the general reactions of the body to damage.	CO5 CO4	3	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	Check-list
	SIWT. Implementation advice of SIW. SIW assignment- Acute phase response	Acute phase response, concept, causes, pathogenesis of manifestations.	CO5	2/4	discussion, report	
7	Lecture. Disorders of water-electrolyte metabolism	The concept of positive and negative water balance. Etiology and pathogenesis of dehydration and hyperhydration. Pathogenetic factors of edema. Principles of prevention and treatment of edema. Typical forms of pathology of electrolyte metabolism. Age features of water-electrolyte metabolism disorders.	CO1 CO2	1	Overview lecture	-



	Practical class. Disorders of water-electrolyte metabolism	The concept of positive and negative water balance. Etiology and pathogenesis of dehydration and hyperhydration. Pathogenetic factors of edema. Principles of prevention and treatment of edema. Typical forms of pathology of electrolyte metabolism. Age features of water-electrolyte metabolism disorders.	CO5 CO4	2	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	Check-list
	Mid-term № 1	Content of lectures, practical classes and SIW from 1 <sup>st</sup> to 7 <sup>th</sup> week	CO5	2	MCQ test	
8	Lecture. Disorders of carbohydrate metabolism	Typical forms of carbohydrate metabolism disorders. Hypoglycemia, types, causes and development mechanisms. Hyperglycemia, types, causes and mechanisms of development. Age features of carbohydrate metabolism disorders.	CO1 CO2	1	Overview lecture	-
	Practical class. Disorders of carbohydrate metabolism	Typical forms of carbohydrate metabolism disorders. Hypoglycemia, types, causes and development mechanisms. Hyperglycemia, types, causes and mechanisms of development. Age features of carbohydrate metabolism disorders.	CO5 CO4	2	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	Check-list
	SIWT. Implementation advice of SIW.	Disorders of the metabolism of	CO5	2/5	discussion, report	-

	SIW assignment- Mineral Metabolism Disorders	macronutrients (sodium, potassium, calcium, phosphorus, magnesium). Disorders of the metabolism of trace elements (iron, copper, zinc, manganese, chromium, selenium, molybdenum, iodine, cobalt, fluorine). Age features of mineral metabolism disorders.				
9	Lecture. Disorders of lipid metabolism	Violation of the digestion, absorption and transport of lipids. Violation of the transition of lipids into tissues. Hyperlipidemia. Violation of fat deposition. Obesity, causes, types, consequences. Impaired metabolism of unsaturated fatty acids, phospholipids and cholesterol. Age features of disorders of fat metabolism.	CO1 CO2	1	Overview lecture	-
	Practical class. Disorders of lipid metabolism	Violation of the digestion, absorption and transport of lipids. Violation of the transition of lipids into tissues. Hyperlipidemia. Violation of fat deposition. Obesity, causes, types, consequences. Impaired metabolism of unsaturated fatty acids, phospholipids and cholesterol. Age features of disorders of fat metabolism.	CO5 CO4	3	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	Check-list
	SIWT. Implementation advice of SIW. SIW assignment-	Violation of the breakdown of food proteins and the	CO5	2/5	discussion, report	

	Violations of protein metabolism. Starvation	assimilation of formed amino acids. Violation of the processes of endogenous synthesis and protein breakdown. Nitrogen balance. Disruption of amino acid metabolism. Violation of the final stage of protein and amino acid metabolism. Starvation, forms, periods. Fasting treatment. Protein-calorie deficiency. Age features of protein metabolism disorders.				
10	Lecture. Hypoxia	Hypoxia, concept. Classification of hypoxic conditions. Etiology and pathogenesis of the main types of hypoxia. Emergency and long-term adaptive reactions with hypoxia. Pathophysiological principles for the prevention and treatment of hypoxic conditions. Age features of hypoxic conditions.	CO1 CO2	1	Overview lecture	-
	Practical class. Hypoxia	Hypoxia, concept. Classification of hypoxic conditions. Etiology and pathogenesis of the main types of hypoxia. Emergency and long-term adaptive reactions with hypoxia. Pathophysiological principles for the prevention and treatment of hypoxic conditions. Age features of hypoxic conditions.	CO5 CO4	2	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	The general form of assessment, including the answers of individual and group testing, self- and mutual assessment

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	SIWT. Implementation advice of SIW. SIW assignment- Disorders of the acid-base balance	Principles for the classification of acid-base disorders. Acidoses and alkaloses, types, compensation mechanisms, correction methods. Age features of acid-base disorders.	CO5	2/5	discussion, report	
11	Lecture. Peripheral circulatory disorders	The main forms of peripheral circulation disorders. Causes, development mechanisms, external manifestations and consequences of arterial and venous hyperemia, ischemia, stasis, thrombosis, embolism. Pathophysiological principles for the correction of peripheral circulation disorders. Age features of peripheral circulation disorders.	CO1 CO2	1	Overview lecture	-
	Practical class. Peripheral circulatory disorders	The main forms of peripheral circulation disorders. Causes, development mechanisms, external manifestations and consequences of arterial and venous hyperemia, ischemia, stasis, thrombosis, embolism. Pathophysiological principles for the correction of peripheral circulation disorders. Age features of peripheral circulation disorders.	CO5 CO4	2	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	Check-list
	SIWT. Implementation advice of SIW. SIW assignment- Hypo - and hypervitaminosis	Exogenous and endogenous forms of hypovitaminosis. Etiology, pathogenesis of the main symptoms	CO5	2/4	discussion, report	


		of various types of hypovitaminosis. Hypervitaminosis, the pathogenesis of clinical manifestations. Age features of hypo- and hypervitaminosis.				
12	Lecture. Inflammation	Inflammation, concept. Etiology of inflammation. The main components of inflammation are alteration, exudation, leukocyte emigration, proliferation. The biological significance of inflammation. Local and general signs of inflammation. Pathophysiological principles for the treatment of inflammation. Age features of the course of inflammation.	CO1 CO2	1	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	-
	Practical class. Inflammation	Inflammation, concept. Etiology of inflammation. The main components of inflammation are alteration, exudation, leukocyte emigration, proliferation. The biological significance of inflammation. Local and general signs of inflammation. Pathophysiological principles for the treatment of inflammation. Age features of the course of inflammation.	CO5 CO4	3	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	Check-list
	SIWT. Implementation advice of SIW. SIW assignment- Pathophysiology of the	Infectious process, concept, causes, development mechanisms. The role	CO5	2/4	discussion, report	

	infectious process. Sepsis	of micro- and macroorganisms in the development of the infectious process. Pathophysiological principles of the prevention and treatment of the infectious process. Sepsis, concept, types. Age features of the course of the infectious process and sepsis.				
13	Lecture. Fever	Fever, concept, etiology, pathogenesis, stages, biological significance. Pathophysiological principles of antipyretic therapy. Age features of the course of fever.	CO1 CO2	1	Overview lecture	-
	Practical class. Fever	Fever, concept, etiology, pathogenesis, stages, biological significance. Pathophysiological principles of antipyretic therapy. Age features of the course of fever.	CO5 CO4	2	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	Check-list
	SIWT. Implementation advice of SIW. SIW assignment- Hyperthermia and hyperthermic reactions	Hyperthermia, concept, types, causes, development mechanisms. The difference between hyperthermia and fever. Violation of the body during hyperthermia. The concept of hyperthermic reactions. Pathophysiological principles for the prevention and treatment of hyperthermia. Age features of the course of hyperthermia.	CO5	2/4	discussion, report	




14	Lecture. Allergy	Allergy, definition, etiology. Allergens, their types. Classifications and general pathogenesis of allergic reactions. Pathophysiological principles for the prevention and treatment of allergic reactions. Features of the pathogenesis of allergic reactions of types I, II, III, IV. Manifestations and pathogenesis of the most common allergic diseases. Age features of the course of allergic reactions.	CO1 CO2	1	Overview lecture	-
	Practical class. Allergy	Allergy, definition, etiology. Allergens, their types. Classifications and general pathogenesis of allergic reactions. Pathophysiological principles for the prevention and treatment of allergic reactions. Features of the pathogenesis of allergic reactions of types I, II, III, IV. Manifestations and pathogenesis of the most common allergic diseases. Age features of the course of allergic reactions.	CO5 CO4	2	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	Check-list
	Midterm examination № 2	Topics of lectures, practical exercises, independent work on Pathological Physiology, completed within 9-14 weeks.	CO1 CO2 CO3 CO4 CO5	2	MCQ test	MCQ evaluation




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15	Lectures. Tumors	Tumors, definition, types. Biological features of tumors. Etiology of tumors. Carcinogenesis, stages. Antitumor resistance of the body. Principles of the prevention and treatment of tumors. Age features of tumor growth.	CO1 CO2	1	Overview lecture	-
	Practical class. Tumors	Tumors, definition, types. Biological features of tumors. Etiology of tumors. Carcinogenesis, stages. Antitumor resistance of the body. Principles of the prevention and treatment of tumors. Age features of tumor growth.	CO5 CO4	3	Practical work, solving case studies, oral questioning, clinical and laboratory data interpretation, MCQ testing	Check-list
	SIWT. Implementation advice of SIW. SIW assignment-Immunodeficiency conditions. AIDS	Immunodeficiency states, species, etiology, pathogenesis, effects on the body, age characteristics. AIDS, etiopathogenesis, stages, manifestations.	CO4	2/4	Preparation of discussion, report	
8.1	Intermediate certification				15	
9.	Methods of learning and teaching					
9.1	Lectures	Overview				
9.2	Practical classes	Small group work; case study; discussion;				
9.3	SIW/SIWT	discussion, report				
9.4	Midterm control	MCQ testing				
10.	Knowledge assessment criteria					
10.1 Criteria for assessing the learning outcomes of the discipline						
	Learning outcomes	Unsatisfactorily	Satisfactorily	Good		Excellent

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CO1	Demonstrates knowledge of the subject and tasks of pathological physiology and masters the basic concepts of general nosology	Does not know the subject and tasks of pathological physiology and does not know the basic concepts of general nosology	Demonstrates a knowledge of the subject and the tasks of pathological physiology and masters the basic concepts of general nosology, while making basic errors	Demonstrates knowledge of the subject and tasks of pathological physiology and masters the basic concepts of general nosology, while making unprincipled errors	Analyses the subject and tasks of pathological physiology and the basic concepts of general nosology
CO2	Identifies pathological processes at organ and tissue level	Cannot identify pathological processes at the organ and tissue level	Identifies pathological processes at the organ and tissue level, while making basic errors	Identifies pathological processes at the organ and tissue level, while making unprincipled errors	Analyses patterns of development of pathological processes at organ and tissue level
CO3	Evaluates the results of clinical and laboratory studies	Misinterprets the results of clinical and laboratory studies, making basic errors without reaching a conclusion.	Interprets the results of clinical and laboratory studies correctly, but makes fundamental errors that lead to an unfounded conclusion	Interprets the results of clinical and laboratory studies correctly, making unprincipled errors but drawing reasonable conclusions	Correctly and accurately interpret the results of clinical and laboratory investigations to reach a reasoned conclusion
CO4	Demonstrates and communicates own knowledge and skills to students and teachers when carrying out practical work or explaining theoretical material in general pathological physiology.	Cannot demonstrate and communicate their own knowledge and skills to students and teachers when carrying out practical work or explaining theoretical material	Experiences difficulties and makes basic mistakes in demonstrating and transferring their own knowledge and skills to students and teachers when carrying out practical work or explaining theoretical material	Demonstrates and communicates their own knowledge and skills to students and teachers when carrying out practical work or explaining theoretical material, making unprincipled mistakes in the process	Demonstrates and fully communicates their own knowledge and skills to students and teachers when carrying out practical work or explaining theoretical material; makes it clearly, competently, without errors.
CO5	Evaluates the results of experimental studies carried out	Misinterprets the results of experimental studies, making	Interprets the results of experimental studies correctly,	Interprets the results of experimental studies correctly, making for unprincipled errors, and draws a reasonable	Interprets the results of experimental studies correctly and accurately, drawing a

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		basic errors without drawing conclusions	but makes basic errors that lead to an unfounded conclusion	conclusion	reasonable conclusion
10.2	Criteria for evaluating teaching methods				
Form of control		Grade		Criteria for marks	
Evaluation of practical work		Excellent 95-100 90-94		The student completed the practical work in a timely manner and without any errors and submitted a report on it took an active part in the discussion of the research results made a reasonable conclusion and showed original thinking.	
		Good 85-89 80-84 75-79 70-74		The student completed the practical work in a timely manner and submitted a report on it making minor errors, took an active part in discussing the results of the study.	
		Satisfactorily 65-69 60-64 50-54		The student completed the practical work in a timely manner and submitted a report on it making fundamental mistakes was not active during the discussion needed the help of a teacher	
		Unsatisfactory 25-49		The student did not submit the report on practical work on time made gross mistakes did not complete all the practical work provided for by the program did not participate in the discussion of the results of the work	
		Unsatisfactory 0-24			
Solving case study		Excellent 95-100 90-94		The student solved case study in a certain time, gave complete answers to all questions	
		Хорошо  85-89 80-84 75-79 70-74		The student solved case study in a certain time, gave complete answers to all questions, and made unprincipled mistakes when solving case study	


	Satisfactorily  65-69 60-64 50-54	The student solved case study in a certain time, gave incomplete answers to questions, made fundamental mistakes when solving situational problems
	Unsatisfactory  25-49	The student incorrectly solved case study or did not solve them at all, made gross mistakes when solving case study
	Unsatisfactory  0-24	
Interpretation of the results of clinical and laboratory studies	Excellent  95-100 90-94	The student correctly, without any mistakes, interpreted the results of clinical and laboratory studies, made a reasonable conclusion
	Good  85-89 80-84 75-79 70-74	The student correctly interpreted the results of clinical and laboratory studies, making unprincipled mistakes, made a reasonable conclusion
	Satisfactorily  65-69 60-64 50-54	The student correctly interpreted the results of clinical and laboratory studies, made fundamental mistakes, made an unreasonable conclusion
	Unsatisfactory  25-49	The student misinterpreted the results of clinical and laboratory studies, made gross mistakes, did not make a conclusion
	Unsatisfactory  0-24	
Discussion of the main issues of the topic	Excellent  95-100 90-94	The student did not make any mistakes during the discussion, was guided in the theories, concepts and directions of general pathophysiology and gave them a critical assessment, and also used the scientific achievements of other disciplines
	Good  85-89 80-84	During the discussion the student did not make gross mistakes, but made inaccuracies and unprincipled

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	75-79 70-74	mistakes corrected by himself, managed to systematize the program material with the help of a teacher
	Satisfactorily  65-69 60-64 50-54	During the discussion the student made fundamental mistakes, limited himself only to the educational literature indicated by the teacher, experienced great difficulties in systematizing the material
	Unsatisfactory  25-49	During the discussion the student made gross mistakes, did not work through the main literature on the topic of the lesson, did not manage to use the scientific terminology of general pathophysiology
	Unsatisfactory  0-24	
MCQ testing	Excellent  95-100 90-94	The student correctly completed 90- 100% of the MCQs
	Good  85-89 80-84 75-79 70-74	The student correctly completed 70- 89% of the MCQs
	Satisfactorily  65-69 60-64 50-54	The student correctly completed 50- 69% of the MCQs
	Unsatisfactory  25-49	The student correctly completed less than 50% of the MCQs
	Unsatisfactory  0-24	
Checklist for evaluating students' independent work	Excellent  95-100 90-94	* prepares a presentation on the topic on time, independently, accurately, with at least 20 concise and meaningful slides, using at least 5 literary sources and with a detailed outline; * provides diagrams, tables and figures relevant to the topic;



		* demonstrated an in-depth knowledge of the topic during the presentation and answered all questions accurately.
	<p>Good</p> <p>85-89 80-84 75-79 70-74</p>	<p>* prepares a presentation on the topic on time, independently, accurately, with at least 20 concise and meaningful slides, using at least 5 literary sources and with a detailed outline;</p> <p>* provided diagrams, tables and figures relevant to the topic;</p> <p>* demonstrated an in-depth knowledge of the topic during the presentation and answered all questions accurately.</p>
	<p>Satisfactorily</p> <p>65-69 60-64 50-54</p>	<p>* prepares a presentation on the topic on time, independently, but sloppily, with at least 20 meaningless slides, using less than 5 literary sources and with an undeveloped plan;</p> <p>* provided an insufficient number of diagrams, tables and figures relevant to the topic;</p> <p>* answered questions uncertainly and made basic errors during the presentation.</p>
	<p>Unsatisfactory</p> <p>25-49</p>	<p>* does not prepare a presentation on the topic in time, or prepared it in time but not independently, sloppily, with less than 20 meaningless slides, without citing literary sources, without a plan;</p>
	<p>Unsatisfactory</p> <p>0-24</p>	<p>* makes gross mistakes in answering questions or is unable to answer questions and does not defend the presentation.</p>
Presentation preparation and performing	<p>Excellent</p> <p>95-100 90-94</p>	<p>The student prepared a presentation on the topic at the appointed time, independently, accurately, with a volume of at least 20 concise and meaningful slides, using at least 5 literary sources and having a detailed plan, provided diagrams, tables and figures corresponding to the topic, demonstrated good knowledge of</p>

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		topic, when answering questions, made unprincipled errors
	<p>Good</p> <p>85-89 80-84 75-79 70-74</p>	The student prepared a presentation on the topic at the appointed time, independently, accurately, with a volume of at least 20 concise and meaningful slides, using at least 5 literary sources and having a detailed plan, provided diagrams, tables and figures corresponding to the topic, demonstrated good knowledge of topic, when answering questions, made unprincipled errors
	<p>Satisfactorily</p> <p>65-69 60-64 50-54</p>	The student prepared a presentation on the topic at the appointed time, independently, but inaccurately, with a volume of at least 20 empty slides, using less than 5 literary sources and the presence of an undeveloped plan, provided an insufficient number of diagrams, tables and figures corresponding to the topic, while defending hesitantly answered questions made fundamental mistakes
	<p>Unsatisfactory</p> <p>25-49</p>	The student did not prepare a presentation on the topic at the appointed time, or prepared it at the appointed time, but not on his own, inaccurately, with a volume of less than 20 empty slides, without indicating literary sources, in the absence of a plan, made gross mistakes when answering questions or was unable to answer questions and did not defend the abstract
	<p>Unsatisfactory</p> <p>0-24</p>	

**Intermediate attestation** – computer based MCQ test.

**Multi-point knowledge assessment system**

Letter Grade	Digital Grade	Percent Grade	Traditional grade
A	4,0	95-100	Excellent



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A -	3,67	90-94	Good
B +	3,33	85-89	
B	3,0	80-84	
B -	2,67	75-79	
C +	2,33	70-74	
C	2,0	65-69	Satisfactorily
C -	1,67	60-64	
D+	1,33	55-59	
D-	1,0	50-54	
FX	0,5	25-49	Unsatisfactorily
F	0	0-24	

11.	Learning resources
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Electronic resources, including but not limited to: databases, simulation animations, professional blogs, websites, other electronic reference materials (e.g. video, audio, digests)


1. Электронная библиотека  
<http://lib.ukma.kz>
2. Электронный каталог
3. -Для внутреннего использования  
<http://10.10.202.52>
4. -Для внешнего использования  
<http://89.218.155.74>
5. Республиканская межвузовская электронная библиотека <http://rmebrk.kz/>
6. «Консультант студента» электронная библиотека медицинских вузов  
<http://www.studmedlib.ru>
7. «Параграф» информационная сеть, раздел «Медицина»  
<https://online.zakon.kz/Medicine>
8. «Заң» правовая электронно-информационная база данных <https://zan.kz>
9. Научная электронная библиотека  
<https://elibrary.ru/>
10. «BooksMed» электронная библиотека  
<http://www.booksmed.com> «Web of science» (Thomson Reuters)  
<http://apps.webofknowledge.com>
11. «Science Direct» (Elsevier)  
<https://www.sciencedirect.com>
12. «Scopus» (Elsevier) [www.scopus.com](http://www.scopus.com)
13. PubMed  
<https://www.ncbi.nlm.nih.gov/pubmed>

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Electronic textbooks	<p>1. Патофизиология [Электронный ресурс]: учебник: в 2-х т. /Под ред. В.В. Новицкого, Е.Д. Гольдберга, О.В. Уразовой. – 4-е изд., перераб. и доп. – Электрон.текстовые дан. (59,9 Мб). – М.: ГЭОТАР-Медиа, 2010. – Т. 1, Т. 2. – Эл.опт. диск (CD-ROM).</p> <p>2. Патологическая физиология [Электронный ресурс] : учебник / под ред. Н. Н. Зайко. - 2-е изд. - Электрон.текстовые дан. (20,5 Мб). - М. :Медпресс-информ, 2004. - 1 эл. опт.диск (CD-ROM).</p> <p>3. Медицина. 3 курс [Электронный ресурс] : курс лекций. - Электрон.текстовые дан. (24,0 Мб). - М. : ИД "Равновесие", 2005. - 1 эл. опт.диск (CD-ROM).</p> <p>4. Пауков, В. С. Патологическая анатомия и патологическая физиология [Электронный ресурс] : учеб. для колледжей . - Электрон. текстовые дан. ( 44,7 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2010. - 256 с. эл. опт.диск (CD-ROM)</p> <p>5. Патологиялық физиология: Патофизиология: тәжірибеліксабақтарғанұсқау: оқуқұралы/ В.В. Новицкийдің ред. – М.: ГЭОТАР-Медиа, 2014.</p> <p>6. Патология: оқулық: 2 т.[Электронный ресурс] /М.А.Пальцев,В.С.Пауковредакциясынанбасқарғандар:М.:ГЭОТАР.- Медиа.2015</p> <p>7. Патологиялық физиология. Тәжірибеліксабақтарғанұсқау [Электронный ресурс] :оқуқұралы = Патофизиология. Руководство к практическим занятиям : учебное пособие / қаз.тіліне ауд. С. Б. Жәутікова ; ред. В. В. Новицкий. - Электрон.текстовые дан. (63,4Мб). - М. : ГЭОТАР - Медиа, 2014. - 768 бет.эл. опт. Диск</p> <p>8. <a href="https://skma.edu.kz/">https://skma.edu.kz/</a></p>
Journals (electronicjournals)	АИС «Platonus»
LaboratoryPhysicalResources	
Specialprograms	


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<p>Textbooks</p>	<p><b>In Russian</b> <b>main:</b> 1. Адо. Патофизиология: Учебник, Т. 1-2. - Эверо, 2015. 2. Патологическая физиология (Общая и Частная): учебник/ В.А. Фролов [и др.]. - 4-е изд., пер.и доп. - М.: Издательский дом "Высшее образование и наука", 2019. - 730 с.: с ил. 3. Патофизиология. В 2 т. Т. 1-2: учебник/ под ред. В. В. Новицкого, Е. Д. Гольдберга, О. И. Уразовой; М-во образования и науки РФ. - 4-е изд., перераб. и доп; Рек. ГОУ ВПО "ММА им. И. М. Сеченова". - М.: ГЭОТАР - Медиа, 2012. - 1488 с. <b>additional:</b> 1. Патологиялық физиология. Тәжірибелік сабақтарға нұсқау [Мәтін]: оқу құралы = Патофизиология. Руководство к практическим занятиям: учеб.пособие/ В. В. Новицкий [ж. б.]; ред. басқ. В. В. Новицкий, О. И. Уразова; қаз. тіліне ауд. С. Б. Жәутікова. - М.: ГЭОТАР - Медиа, 2014. - 768 бет с. 2. Патофизиология. Задачи и тестовые задания: учеб.-методическое пособие/ под ред. П. Ф. Литвицкого; М-во образования и науки РФ. - Рек. ГОУ ВПО "ММА им. И. М. Сеченова". - М.: ГЭОТАР - Медиа, 2013. - 384 с.: ил. 3. Патофизиология: рук.к практическим занятиям: учеб. пособие/ под ред. В. В. Новицкого, О. И. Уразовой. - М.: ГЭОТАР - Медиа, 2011. - 336 с. <b>In Kazakh</b> <b>main:</b> 1. Патофизиология. Екітомдық. 1-2 т.: оқулық/ қазақ тіл. ауд. Б. А. Жетпісбаев, С. Б. Жәутікова; ред. В. В. Новицкий. - М.: ГЭОТАР - Медиа, 2018. - 1104 б. + эл. опт.диск (CD-ROM). 2. Адо. Патофизиология: Оқулық. 1-2 т. - Эверо, 2015. 3. Нұрмұхамбетұлы, Ә. Патофизиология. 1-4 т.: оқулық/ Ә. Нұрмұхамбетұлы. - өңд., толықт. 4-бас. - Алматы: Эверо, 2015. - 766 бет с. <b>Additional:</b> 1. Нұрмұхамбетұлы, Ә. Патофизиология-1. Клиникалық практикада өте маңызды біртектес дерттік үрдістердің патогенезі мен емдеу жолдарына нұсқама. 1-2 т.: оқу құралы. - Алматы: Эверо, 2016. - 504 б. 2. Патологиялық физиология. Тәжірибелік сабақтарға нұсқау [Мәтін]: оқу құралы = Патофизиология. Руководство к практическим занятиям: учеб.пособие/ В. В. Новицкий [ж. б.]; ред. басқ. В. В. Новицкий, О. И. Уразова; қаз. тіліне ауд. С. Б. Жәутікова. - М.: ГЭОТАР - Медиа, 2014. - 768 бет с.</p>
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	<p>3. Уразалина, Н. М. Тест тапсырмалары. I-II бөлім. Жалпы нозология, этиология және патогенез, тұқымқуалаушылықреактивтікпатологиясыжәне аллергия. Біртектес дерттікүрдістер. - Алматы: Эверо, 2014. - 386 бет.</p> <p>4. Жәутікова, С. Б. Мамандандырылғанпатологиялық физиология курсы: оқу-әдістемелікқұралы. - Қарағанды: ЖК "АқНұр", 2013.</p> <p>5. Жәутікова, С. Б. Патологиялық физиология пәнібойыншаситуациялықесептержинағы: оқу-әдістемелікқұрал. - Қарағанды: ЖК "АқНұр", 2013.</p> <p><b>In English</b> <b>main:</b></p> <p>1. Norris Tommie L.Porth's Pathophysiology: Concepts of Altered Health States: Textbook/ Tommie L. Norris. - 10 nd ed. - [s. l.]: Wolters Kluwer, 2019. - 1573 p.</p> <p>2. Kumar V. Robbins Basic Pathology: Textbook/ V. Kumar, A. K. Abbas, J. C. Aster. - 10 nd ed. - [s. l.]: Elsevier, 2018. - 935 p.</p> <p>3. Pathophysiology. Volume 1-3: the book for medical institutes/ A. D. Ado [and others]. - Almaty: "Evero", 2017. - 732 p.</p> <p>4. Zhautikova, S. B. Review of pathophysiology: educational-methodical manual/ S. B. Zhautikova, U. Faroog. - Караганда: АҚНҰР, 2017. - 388 p.</p> <p>5. Zhautikova, S. B. Collection of situational problems for discipline of pathological physiology-2: educational-methodical manual/ S. B. Zhautikova, U. Faroog. - Караганда: АҚНҰР, 2017. - 126 p.</p> <p>6. Kumar V. Robbins and Cotran. Pathologic Basis of Disease: Textbook/ V. Kumar, Abyl K. Abbas, Jon C. Aster. - 9 nd ed. - [s. l.]: Elsevier/ Saunders, 2015. - 1391 p.</p> <p><b>Дистанционные образовательные технологии</b> Литература, предназначенная для медицинского и фармацевтического образования, представлена в электронной библиотеке «Консультант студента» (издательство ГЭОТАР), который представляет доступ к современной учебной литературе по всем дисциплинам. Ссылка для доступа: Консультант студента <a href="http://www.studmedlib.ru/">http://www.studmedlib.ru/</a> Библиотечно – информационного центра академии <a href="http://lib.ukma.kz">http://lib.ukma.kz</a> Aknurpress <a href="http://www.aknurpress.kz">http://www.aknurpress.kz</a></p>
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12.	Course policy
Requirements for students (attendance, behavior, grading policy, penalties, incentives, etc.)	

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- observe medical ethics and deontology;
- do not smoke in the academy;
- maintain cleanliness in the department;
- do not damage furniture in classrooms;
- treat textbooks with care;
- maintain the appearance of a medical student;
- follow safety regulations;
- during quarantine, wear medical masks and comply with the sanitary and epidemiological regime;
- do not miss classes without a good reason;
- make up classes missed for good reason in a timely manner, but only with the permission of the dean's office and at the time specified by the teacher;
- not be late for classes;
- have the necessary documentation in class: syllabus, teaching instructions, lectures, notebook and textbook;
- prepare for classes conscientiously;
- be active during classes;
- do not engage in extraneous activities during classes: do not talk, do not smoke, do not chew gum, do not eat food, do not use the telephone, do not listen to music, do not read newspapers and magazines, do not prepare for classes in another discipline;
- maintain silence and order during breaks;
- complete and submit the SRO (in electronic form) on time according to schedule.


#### **Penalties for failure to complete sections of work:**

- if lecture is missed without a valid reason, midterm test score will be reduced – 1 point for each missed lecture;
- if the SIWT class is miss without a valid reason, the midterm control score is reduced – 2 points for each missed class;
- if the SIWT work is submitted late without a valid reason (later than the scheduled week), the SIWT work will not be accepted;
- in case of a single violation of the discipline policy, the student is given a warning;
- in case of systematic violation of the discipline policy, information about the student's behavior is transferred to the dean's office of the faculty.

#### **Criteria for non-admission to final control:**

- a student who received an unsatisfactory grade for one of the types of controls (ME 1, ME 2, average rating of the current control) is not allowed to take the final control in the discipline.

<b>13.</b>	<b>Academic policy</b>
	<b>Academic policy of JSC SKMA. Clause 4. Student Code of Honor</b>
	<p>SKMA website - <a href="https://ukma.kz">https://ukma.kz</a>  Academic policy- <a href="https://base.ukgfa.kz/wp-content/uploads/2021/01/%D0%90%D0%BA%D0%B0%D0%B4%D0%B5%D0%BC%D0%B8%D1%87%D0%B5%D1%81%D0%BA%D0%B0%D1%8F-%D0%BF%D0%BE%D0%BB%D0%B8%D1%82%D0%B8%D0%BA%D0%B0-%D0%90%D0%9E-%D0%AE%D0%9A%D0%9C%D0%90.pdf">https://base.ukgfa.kz/wp-content/uploads/2021/01/%D0%90%D0%BA%D0%B0%D0%B4%D0%B5%D0%BC%D0%B8%D1%87%D0%B5%D1%81%D0%BA%D0%B0%D1%8F-%D0%BF%D0%BE%D0%BB%D0%B8%D1%82%D0%B8%D0%BA%D0%B0-%D0%90%D0%9E-%D0%AE%D0%9A%D0%9C%D0%90.pdf</a>  Code of honor for students - <a href="https://base.ukgfa.kz/wp-content/uploads/2021/01/%D0%90%D0%BA%D0%B0%D0%B4%D0%B5%D0%BC%D0%B8%D1%87%D0%B5%D1%81%D0%BA%D0%B0%D1%8F-%D0%BF%D0%BE%D0%BB%D0%B8%D1%82%D0%B8%D0%BA%D0%B0-%D0%90%D0%9E-%D0%AE%D0%9A%D0%9C%D0%90.pdf">https://base.ukgfa.kz/wp-content/uploads/2021/01/%D0%90%D0%BA%D0%B0%D0%B4%D0%B5%D0%BC%D0%B8%D1%87%D0%B5%D1%81%D0%BA%D0%B0%D1%8F-%D0%BF%D0%BE%D0%BB%D0%B8%D1%82%D0%B8%D0%BA%D0%B0-%D0%90%D0%9E-%D0%AE%D0%9A%D0%9C%D0%90.pdf</a></p>
<b>The formula for calculating the final grade for the course</b>	

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The final mark is calculated automatically based on the average assessment of the current control, the average estimate of the midterm examinations, average of SIW and the evaluation of the final control.

$$\text{Final mark (100\%)} = \text{RM (60\%)} + \text{FC (40\%)}$$

$$\text{RM (60\%)} = \text{ME}_{\text{aver}} (20\%) + \text{CC}_{\text{aver}} (40\%)$$

$$\text{ME}_{\text{aver}} = (\text{ME}_1 + \text{ME}_2) : 2$$

**CC<sub>aver</sub>** – average of the sum of current marks, considering average mark of SIW and penalty points

$$\text{Final mark (100\%)} = \text{ME}_{\text{aver}} \times 0,2 + \text{CC}_{\text{aver}} \times 0,4 + \text{FC} \times 0,4$$

**RM** – rating mark





**FC** – mark of a final control

**ME<sub>aver</sub>** – average mark of midterm examinations


**CC<sub>aver</sub>** – average mark of current control, considering SIW and penalty points

**ME<sub>1</sub>** – midterm examination 1

**ME<sub>2</sub>** – midterm examination 2

Date approved by the department	Protocol №	FULL NAME. head	Signature
26.05.2023	N11	Sadykova A.Sh.	
Date of approval by the EPC	Protocol №	FULL NAME. Chairman of the EPC	Signature
05.06.2023	N11	Sadykova A.Sh.	
Revision date	Protocol №	FULL NAME. head	Signature
04.09.2023	N2	Sadykova A.Sh.	
Date of approval by the EPC	Protocol №	FULL NAME. Chairman of the EPC	Signature
05.09.2023	N2	Sadykova A.Sh.	



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Department of Pathology and Forensic Medicine		044-53/11 (    )
Working programme of the “General Pathological Physiology” (SYLLABUS) Studying Programme 6B10101 «General Medicine»		Edit. № 1 Page 30 from 32