

ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ		 SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия»
Кафедра «Нормальной анатомии» Кафедра «Патологической анатомии и гистологии» Кафедра «Нормальной и патологической физиологии» Кафедра «Биологии и биохимии» Кафедра «Фтизиопульмонологии и радиологии» Кафедра «Введение в клинику»		044-42/16 Стр.1 из 28
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ОРИГИНАЛ

Syllabus

Department of "Normal Anatomy"

Department of "Pathological Anatomy and Histology"

Department of "Normal and Pathological Physiology"

Department of Biology and Biochemistry

Department of Phthisiopulmonology and Radiology

Department "Introduction to the clinic"

Educational program: 6B10115 "Medicine"

Working curriculum of the discipline: Normal Cardiorespiratory system

1.	General information about the discipline		
1.1	Discipline code: KSN 2207	1.6	Academic year:2023-2024
1.2	Name of the discipline: Cardiorespiratory system is normal.	1.7	Course: 2
1.3	Prerequisites: Introduction to the profession, Structural organization of human physiological processes	1.8th	Semester: 4
1.4	Post-requirements: General pathology, cardio-respiratory systema in pathology	1.9	Number of credits (ECTS): 7/21/210
	Cycle: DB	1.10	Component: VC
2.	Description of the discipline		
The discipline "Cardiorespiratory system in normal" is a comprehensive study of anatomy, histology, physiology, biochemistry, clinical introduction and visual diagnostics in the context of a healthy cardiorespiratory system. This discipline is intended for students of the specialty "MMedical medicine" and is aimed at a deep understanding of the normal structure and functioning of the cardiovascular and respiratory systems.			
3.	Summative assessment form		
3.1	☒ Testing	3.5	Coursework
3.2	Written	3.6	Essay
3.3	Oral	3.7	Project
OSPE Draft	☒ 3.4/OCE or Practical skills admission	3.8	Other (specify)
4.	The discipline aims		
to develop students ' deep and comprehensive knowledge and understanding of the anatomy, histology, physiology and biochemistry of the cardiorespiratory system in a healthy body. This allows them to fully interact with patients in the future, as well as successfully integrate the knowledge gained during introduction to clinical practice and visual diagnostics.			
5.	Final learning outcomes (RO disciplines)		
PO1	Knows and understands the structural features of the heart, lungs, blood vessels, and other elements of the cardiorespiratory system. The methoden should describe the microscopic structure of organs and tissues associated with the cardiorespiratory system.		

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PO 2	He knows the basic physiological processes in the heart and lungs, understands the regulation of respiration and heart activity. It is able to explain the mechanisms of gas exchange and transport of oxygen and carbon dioxide.					
PO3	Knows the main metabolic pathways that affect the function of the cardiorespiratory system. Understands biochemical processes related to energy exchange in the heart muscles, respiration and gas exchange.					
RO4	is able to apply knowledge about the cardiorespiratory system in a clinical context, acquire the skills of clinical history and physical examination of patients with diseases of the cardiorespiratory system for first aid, and is able to interpret the results of laboratory and instrumental studies.					
RO5	is able to analyze data from visual diagnostic methods, such as radiography, electrocardiography (ECG), computed tomography (CT), and others. Able to interpret images associated with the cardiorespiratory system.					
5.1	RO disciplines	Learning outcomes of the OP, which are associated with the RO disciplines				
	RO 1 RO 2 RO 3	RO 1-Applies in practice fundamental knowledge in the field of biomedical, clinical, epidemiological and socio - behavioral sciences.				
	RO 4 RO 5	RO 2-Provides effective patient-centered carethat includes relevant and effective biomedical, clinical, and epidemiological sciences aimed at the diagnosis, treatment, and prevention of the most common diseases.				
		RO 11-Analyzes the results of research conducted and their professional activities based on scientific data				
6.	Detailed information about the discipline					
3	Location of the Department of "Normal Anatomy" – 1 Al-Farabi Square, main academic building, ground floor; internal phone-40-82-22, 40-82-26 (263), e-mailanatomia.2012@mail.ru. Email address: www.ukma.kz.ukma.kz. Location of the Department of "Pathological Anatomy and Histology" Shymkent, Al-Farabi Square 3, academic building No. 2, 4th floor; classrooms-No. 404 a, b; № 406; №408; №409, №411 a, b. e-mail of the Department: Patan.gisto@mail.ru Location of the Department of "Normal and Pathological Physiology", Shymkent, Al-Farabi Square, school building No. 2, 4th-5th floor; tel. 40-82-26 (422,423); Location of the Department of Biology and Biochemistry: 1 Al-Farabi Square, main academic building, 4th floor Location of the Department "Phthisiopulmonology and radiology": Clinic "Naz-Med", Ryskulova str. - 33. e-mail – el_nur2@mail.ru@mail.ru Location of the Department "Introduction to the clinic": Shymkent, Shymkent City Multidisciplinary Hospital, No. 2, Zhandosova str., 92/9 (modular) e-mail – klinikaskma@mail.ru.@mail.ru.					
6.2	Number of hours	Lectures	of the Practical zan.	Lab.Zan Lecture.	SROP	SRO
		14	56		42	77
6.3	Plan of the discipline					
No.	discipline	the Lecture	And	the TUTORIAL	SRO	
day 1	Anatomy	1	2	-		



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	Physiology		-	2	4	
	Histology	-	1	-		
	Biochemistry	-	-	-		
	the Basics of radiological diagnosis	-	-	-		
	introduction to the clinic	-	-	-		
2 day	Anatomy	-	-	2	4	
	Physiology	1	2	-		
	Histology	-	-	-		
	Biochemistry	-	1	-		
	the Basics of radiological diagnosis	-	-	-		
day 3	introduction to the clinic	-	-	-		
	Anatomy	-	1	-		
	Physiology	-	-	-		
	Histology	1	1			
	Biochemistry	-	-	2	4	
4 day	Basics of radiological diagnosis	-	-	-		
	introduction to the clinic	-	1	-		
	Anatomy	-	-			
	Physiology	-	1	-		
	Histology	-	-	-		
5 day	Biochemistry	1	1	-		
	Basics of radiological diagnosis	-	1	-		
	introduction to the clinic	-	-	2	4	
	Anatomy	-	2	2	4	
	Physiology	-	-	-		
Day 6	Histology	-	1	-		
	Biochemistry	-	-	-		
	the Basics of radiological diagnosis	-	-	-		
	introduction to the clinic	1	1	-		
	Anatomy	-	-	-		
7 day	Physiology	-	2	-		
	Histology	-	-	2	4	
	Biochemistry	-	-	-		
	the Basics of radiological diagnosis	-	-	-		
	introduction to the clinic	-	1	2	4	
8 day	Anatomy	1	1	-		
	Physiology	-	-			
	Histology	-	1	-		
	Biochemistry	-	-	2	4	
	Basics of radiological diagnosis	-	-	-		
9 day	introduction to the clinic	-	1	-		
	Anatomy	-	2	2	4	
	Physiology	-	-	-		
	Histology	1	-	-		
	Biochemistry	-	-	-	-	
10 day	The basics of radiological diagnosis	-	1	-		
	introduction to the clinic	-	-	-	-	
	Anatomy	-	-			
	Physiology	-	2	-		
	Histology	-	-	2 RK -1	4	
day 11	Biochemistry	1	1	-		
	Basics of radiation diagnostics	-	-	-		
	introduction to the clinic	-	-	-		
	Anatomy	-	1	-		
	Physiology	-	-	2	4	



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	Histology	-	1			
	Biochemistry	-	-	-		
	the Basics of radiological diagnosis	-	-	-		
	introduction to the clinic	1	1	-		
12 day of	Anatomy	1	-			
	Physiology	-	1	-		
	Histology	-	-	-		
	Biochemistry	-	1	-		
13 days	the Basics of radiological diagnosis	-	-	2	4	
	introduction to the clinic	-	1	-		
	Anatomy	-	2	-		
	Physiology	1	-	2	4	
day 14	Histology	-	1	-		
	Biochemistry	-	-	-		
	the Basics of radiological diagnosis	-	-	-		
	introduction to the clinic	-	-	-		
day 15	Anatomy	1	-	2	4	
	Physiology	-	2	-		
	Histology	-	-	-		
	Biochemistry	-	-	-		
16 day	the Basics of radiological diagnosis	-	1	-		
	introduction to the clinic	-	-	-		
	Anatomy	-	1	-		
	Physiology	-	-	-		
17 day	Histology	-	1	1	1	
	Biochemistry	-	1	2	3	
	the Basics of radiological diagnosis	-	-	-		
	introduction to the clinic	-	1	-		
18 day	Anatomy	-	-	2	3	
	Physiology	-	-	1	2	
	Histology	-	1	-		
	Biochemistry	-	1	-		
19 day	Basics of radiation diagnostics	-	1	-		
	Introduction to the clinic	-	-	-		
	Anatomy		2			
	Physiology					
20 day	Histology		1	1	3	
	Biochemistry					
	Basics of radiation diagnostics					
	Introduction to the clinic			2	3	
21 day	Anatomy			2	3	
	Physiology		1			
	Histology					
	Biochemistry		1			
22 day	Basics of radiation diagnostics			1	1.5	
	Introduction to the clinic		1			
	Anatomy		2			
	Physiology			2 pk-2	2,5	
23 day	Histology					
	Biochemistry					
	Basics of radiation diagnostics					
	Introduction to the clinic					
1	Anatomy	4	16	12	28 (22)	2.0 kr
2	Physiology	3	12	9	21(16,5)	1.5 kr
3	Histology	2	8	6	14(11)	1.0 kr
4	Biochemistry	2	8	6	14(11)	1.0kr
5	Fundamentals of radiation diagnostics	1	4	3	7 (5,5)	0,5 kr

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6	Introduction to the clinic	2	8	6	14(11)	1,0kr
7.	Information about teachers					
№	Full name	Degree and position	Email address	Research interests etc	Note	
1.	Tanabaev Baimakhan Dilbarkhanovich	Head of the Department, Candidate of Medical Sciences, acting professor	b.tanabayev@mail.ru	Research area - "Macro-microhemocirculatory bed of pelvic organs during ligation of internal iliac arteries".	He gives lectures and conducts practical classes on anatomy in Kazakh and Russian.	
2.	Murzanova Dinar Alpenovna	Candidate of Medical Sciences, Acting Professor	dina.murzanova@gmail.com The	direction of scientific research is " Adam anatomiyasyndagyishkiagza ataularynynulttyksipaty.	He gives lectures and conducts practical classes on anatomy in Kazakh, Russian and English.	
3.	Турекулова Акжаркын Кенесовна	ст. преподаватель, магистр	jarkin-74@mail.ru	Направление научных изысканий – «Ыстық климат жағдайында қорғасынның магистралды артериялар қабырғасының құрылымына тигізетін әсері.»	Читает лекции и ведет практические занятия по анатомии на казахском языке.	
4.	Ospanov Daken Tolenovich	art. teacher	dakenospanov@list.ru		He gives lectures and conducts practical classes on anatomy in the Kazakh language.	
5.	Dzhubanishbaeva Gaukhar Niyazkulovna	senior lecturer, Master	's	degree gaukharai_kairat@mail.ru The direction of scientific research – "MEMS endiru barysyndagykykalyk zhumysynyn maselelerin aykyndau"	Gives lectures and conducts practical classes on anatomy in the Kazakh language.	

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6.	Сисабеков Касымхан Ермекбаевич	Профессор, д.м.н	sisabekov47@mail.ru	«Нейроиммуногенездің жергілікті механизмдерінің морфологиялық негіздері.»	Читает лекции и проводит практические занятия по гистологии на казахском и русском языках.
7.	Zhumashev Seidaly Nurakhovich	I.about the professor, Doctor of Medical Sciences	sult_med@mail.ru	Scientific direction: "Study of the morphological structure of hemo- immunopoiesis"	He gives lectures and conducts practical classes in histology in Kazakh and Russian.
8.	Toymbetova Karlygash Abibullayevna	art.teacher	tojmbetova71@mail.ru	Scientific direction: "neuromorphology"	Читает лекции и проводит практические занятия по гистологии на казахском и русском языках
9.	Дуйсембиева Жазира Мерейқызы	преподаватель	zhazira-0508@mail.ru	Ведет научно- исследовательскую работу по теме «Оңтүстік Қазақстан аймағындағы тұрғындардың салауатты өмір салтын қалыптастырудың ғылыми негіздері».	Conducts practical histology classes in Kazakh.
10.	Zhakupbekova Galiya Saparovna	Head of the Department Department, Candidate of Biological Sciences, acting Professor	Galiya_074@mail.ru	"The influence of bioslastylin on the processes of lipid peroxidation in hepatocytes and blood plasma during phosphorus intoxication" тақырып бойынша zhumysy zhurgizedi, candidate of the dissertation of korgady.	Author of 35 scientific publications, prepared 1 pre- patent, 1 patent.
11.	Сатыбалдиева Назгул Муталхановна	магистр, ст преподаватель	n_a_z_i_92@mail.ru	Ведет научно- исследовательскую работу по теме «Тынысжүйесіауруларына нтуындайтынмүгедектікті ңәлеуметтік- медициналықмәселелері». Author of 11 scientific publications.	He gives lectures and conducts practical exercises in physiology in Kazakh and Russian.

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12.	Murina Natalia Mikhailovna	Senior lecturer	namuri12@mail.ru	Author of 9 scientific publications.	He gives lectures and conducts practical exercises in physiology in Kazakh and Russian.
13.	Azimbayeva Saule Nurmakhanovna	Master's degree, senior lecturer	saule.a@mail.ru.a@mail.ru	Author of 7 scientific publications.	Gives lectures and conducts practical exercises in physiology in Kazakh and Russian
14.	Kenzhebekov Pernebek Kenzhebekovich	Candidate of Chemical Sciences, Professor	kenzhebekov.p@gmail.com	"Investigation of the chemical composition of volatile aroma-forming compounds in some meat products"	Author of 42 scientific publications, 1 textbook
15.	Ordabekova Asmira Baltabayevna	Master of Biology, senior lecturer	asmira75@mail.ru.ru	"Microelementoses"	Author of 20 scientific publications, 1 of the textbook
16.	Gulshahar Kenesbekovna Asilbekova	Master of Biology, senior lecturer	shahats@mail.ru@mail.ru	"Microelementoses"	Author of 10 scientific publications, 1 textbook
17.	Beisebayeva Lyazzat Mukhtarovna	senior lecturer	lyzzatb70@list.ru	"Organization of clinical and diagnostic laboratory service in modern conditions in the Republic of Kazakhstan"	Author of 4 scientific publications
18.	Zhienbayeva Aliya Altbaevna	teacher			of 1 scientific publication
19.	Umurzakova Gaukhar Amangeldievna	assistant of the department	visual_diagnostics@mail.ru	Radionuclide diagnostics of the urinary system	Gives lectures and conducts classes in Kazakh and Russian.

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20.	Umiraliev Asset Amiralievich	Assistant of the Department	Aset.umiraliyev.72@ mail.ru	Ultrasound of the abdominal cavity	Gives lectures and conducts classes in Kazakh and Russian.
21.	Tulegenova Aigul Asanbayevna	Assistant of the Department	taa8009@mail.ru	Ultrasound of organs in children	Gives lectures and conducts classes in Kazakh and Russian.articles
22.	Zhumadilova Akmaral Rakhmatullayevna	Head of the Department, Candidate of Medical Sciences, acting Associate Professor	akmaral-aru@mail.ru	Doc topic: features of the formation of the reproductive system of adolescent girls living in the zone of action of organochlorine pesticides. Author of more than 40 scientific and methodological publications, 6 textbooks.	He gives lectures and conducts classes in Kazakh and Russian.
23.	Dilsara Talibbayevna Ababakirova	Assistant	dilsara_ababakirova@ mail.ru_ababakirova @mail.ru	Innovative technology in the treatment of uterine fibroids	Gives lectures and conducts classes in Russian, Kazakh and English.
24.	Ermolaeva Olga Aleksandrovna	assistant	Olga83_07@mail.ru	Author of more than 40 scientific publications, 1 textbook in Russian and English.	He gives lectures and conducts classes in Russian and Kazakh.

Day	Class form	Summary of	each module	Number of hours	Forms/methods/ technologies of training	Forms / assessment methods
1	Anatomy. Lecture 1. General anatomy of the cardiovascular system. Circulatory circles	The structure of the heart. Heart chambers. The structure of the heart walls. Topography of the heart. The aorta and its branches. Pulmonary trunk, branches.	PO1	1	Introductory lecture	Feedback (control questions)

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	Anatomy. Practical lesson 1. Cardiovascular system. Heart. Circulatory circles. Age-specific features.	Heart, structure, topography. Conducting system of the heart. Pericardium. The mediastinum.	PO1, PO2	2	work in small groups with anatomical preparations, torso, models, posters, on the interactive panel "Pirogov" and/or solving test and situational tasks	oral survey, assessment sheet for solving situational tasks, assessment sheet for completing test tasks
	Histology. practical lesson#1.Topic: Arteries.	Arteries. The structure of the arterial wall in connection with hemodynamic conditions. Features of the structure and function of various types of arteries. Organ features of arteries.	PO1, PO2	1	Work in small groups, gis checklistof-topreparats, micrographic	checklist of practical lesson assessment.
	Physiology. CROP/SRO1. Functions of the valvular heart apparatus.	Structure and functions of the valvular heart apparatus.	PO1, PO2	2/4/ 4	Preparation and protection of presentations.	Checklist for evaluating SROs.
2	Physiology. Lecture 1. Physiology of cardiac activity.	Physiology of the cardiovascular system. Circulatory circles. Regulation of heart activity.	PO1	1	Introductory lecture	Feedback
	Physiology. Practical lesson.1 Physiology of the heart. Physiological properties of the heart muscle.	Physiology of the heart. Physiological properties of the heart muscle. Automaticity of the heart.	PO1 PO2	2	discussion of the main issues of the topic, performing test tasks, solving situational problems.	Oral survey, assessment of test tasks, assessment of solving situational problems
	Biochemistry. Biochemistry of the cardiovascular system.	Biochemistry of the cardiovascular system. The role of sodium, chlorine and other factors in maintaining osmotic pressure in the vascular canal. Biological role of vitamin K, C.	PO1 PO2	1	Seminar, situational tasks	Checklist for evaluating practical exercises.
	Anatomy. SROP / SRO 1 Features of the heart structure in the fetus and newborn. Fetal blood circulation.	Features of the heart structure in the fetus and newborn. Fetal blood circulation. Malformations of the heart.	PO1, PO2	2/4/ 4	Preparation and defense of the presentation;	Oral survey.Evaluation sheets for all forms of

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	Malformations of the heart.					the completed task.
3	Histology. Lecture #1. Topic: Histological structure of the cardiovascular system.	Introduction to the development and histophysiology of arteries, veins, vessels of the microcirculatory bed, lymphatic vessels, age-related features. Understanding the development and histophysiology of the heart.	PO1	1	overview	Answers to control questions
	Histology. Practical lesson#2. Topic: Vessels of the microcirculatory bed.	Vessels of the microcirculatory bed. Structure, hemodynamic conditions, significance in metabolism. Arterioles, their role in blood circulation. Building. Hemocapillaries. Classification, function, and structure. Organ features of capillaries. Venules. Functional significance and structure. Arteriovenous anastomoses. Value for blood circulation.	PO1, PO2	1	Work in small groups, gis checklistof-topreparats, micrographic	checklist of practical lesson assessment.
	Anatomy. Practical lesson 2. The aorta and its parts. Branches of the arch and thoracic part of the aorta.	The aorta and its parts: structure and topography. Coronary arteries. Branches of the aortic arch. Branches of the thoracic aorta.	PO1, PO2	1	work in small groups with anatomical preparations, torso, models, posters, on the interactive panel "Pirogov" and/or solving test and situational tasks	oral survey, assessment sheet for solving situational tasks, assessment sheet for completing test tasks
	Introduction to the clinic. Practical teaching1. Pain in the heart area. Diagnosis and first aid	of pain in the heart and behind the sternum. Characteristics of symptoms. Causes and mechanism of development of pain in the heart. Dyspnea. Edema. Suffocation (cardiac asthma). Pre-medical care for heart pain	PO2 PO11	1	Performing test tasks, solving clinical problems, performing practical work	Checklist for evaluating practical classes
	Biochemistry. CROP/SRO1. Chemical factors in the regulation of the bloodstream.	Chemical factors in the regulation of the bloodstream (mechanism of action of vasodilators and vasoconstrictors).	PO1 PO2	2/4/4	presentation, essay	Checklist for SRO assessment

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4	Biochemistry. Lecture 1. Myocardial biochemistry.	Biochemistry of the myocardium. Features of the structure and chemical composition of heart muscle tissue (myocardium). The main biochemical processes in the myocardium.	PO1	1	Overview	questions of feedback
	Biochemistry. Practical study2. Biochemistry of vascular tone and blood circulation.	Biochemistry of vascular tone and blood circulation. Laboratory work: "Determination of total cholesterol concentration in blood serum".	PO1 PO2	1	seminar, laboratory work, situational tasks	Checklist for evaluating practical classes, performing laboratory work.
	Physiology. Practical preoccupation2 Pumping function of the heart. Phases of the cardiac cycle.	Pumping function of the heart. Phases of the cardiac cycle. Systolic and minute volume of blood flow.	PO1 PO2	1	discuss the main issues of the topic, perform test tasks, solve situational problems.	Oral survey, assessment of test tasks, assessment of solving situational problems
	Introduction to the clinic. SROP/SRO1 . Clinical methods of examination of patients with diseases of the cardiovascular system	General examination of a patient with diseases of the cardiovascular system. Collecting anamnesis. The sequence of conducting a general examination of the patient: conditions, rules and techniques. Main complaints. Preparation of the patient for laboratory and instrumental research methods.	PO2 PO11	2/4/ 4	Working with electronic information resources. Preparation of a presentation, crossword puzzle, preparation of an intellectual map, preparation of test tasks. Demonstration of practical skills	Protection of presentations, crossword puzzles, smart cards, and test tasks. Evaluation of
	the Basic radiation diagnostics checklist. Practical study1 Radiation diagnostics of the heart and main vessels. Radiography of the heart. Computed tomography of the	-Visual anatomy of the heart and large vessels. Main radiological symptoms and syndromes. Basic and additional research methods. Radiography of the heart Computed tomography of the heart and main vessels Echocardiography	RO 1 RO1 1	1	discussion, working with the provided radiological images	oral survey, discussion of the results of the study, solving situational problems, working with radiological images

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	heart and main vessels. Echocardiography					
5	Fundamentals of radiation diagnostics. Lecture Radiation diagnostics of the cardiorespiratory system. Radiological methods for studying the cardiorespiratory system.	Radiological methods for studying the cardiorespiratory system.. Basic X-ray methods for studying the cardiorespiratory system. Basic and additional methods for studying the cardiorespiratory system.	PO 1	1	Overview and illustrative	Feedback
	Anatomy. Practical lesson 3. General, external and internal carotid arteries: topography, projection, branches, areas of blood supply.	General, external and internal carotid arteries: topography, projection, branches, blood supply areas. Blood supply to the brain.	PO1 PO2	2	work in small groups with anatomical preparations, torso, models, posters, on the interactive panel "Pirogov" and/or solving test and situational tasks	oral survey, assessment sheet for solving situational tasks, assessment sheet for completing test tasks
	Histology. Practical lesson#3 Topic: Veins. Lymphatic vessels	of the vein. The structure of the venous wall due to hemodynamic conditions. Features of the structure of veins of various types. Structure of venous valves. Lymphatic-vessels. Structure and classification. The structure of lymphatic capillaries and various types of lymphatic vessels.	PO1, PO2	1	Work in small groups, checklist of histopreparations, micrographs	Checklist of practical lesson assessment.
	Anatomy. SROP/SRO 2. Subclavian, axillary, and brachial arteries: topography,	Subclavian, axillary, and brachial arteries: topography, branches, and areas of blood supply.	PO2	2/4/ 4	-Preparation and defense of the presentation.	An oral survey. Evaluation sheets for all

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	branches, and areas of blood supply.				- performing a diagram of the course of the artery and blood supply areas.	forms of the completed task.
6	Introduction to the clinic. Lecture 1 Diseases of the cardiovascular system. Diagnosis and first aid	Risk factors, clinical manifestations. Diagnosis and first aid for pain in the heart.	PO2 PO11	1	review	Feedback
	Introduction to the clinic. Practical lesson 2. Arterial hypertension and symptomatic hypertension.	Hypertension. Risk factors, classification by stages, degree of hypertension and risk of cardiovascular complications. Clinic, diagnosis, and complications. Diagnostics and first aid. Prevention. Diet therapy.	PO2 PO11	1	Performing test tasks, solving clinical tasks, performing practical work	Checklist for evaluating practical exercises
	Physiology. Practical lesson 3 Conducting system of the heart.	Conducting system of the heart. Stanius ' experience.	PO1 PO2	2	discussion of the main issues of the topic, performing test tasks, solving situational problems.	Oral survey, assessment of test tasks, assessment of solving situational problems
	Histology. SROP / SRO 1. Morphofunctional features of the cardiac conduction system	Sources of development of the cardiac conduction system. Structure and functional significance of the cardiac conduction system.	PO1, PO2	2/44	Work in smallgroups, presentation defense, glossary compilation.	Checklist for evaluating SRO
7	Anatomy. Lecture 2. Arteries of the great circle of blood circulation	Branches of the ascending aorta and aortic arch, parietal and visceral branches of the thoracic and abdominal parts of the aorta.	RO1	1	Review	Feedback (Security questions)
	Anatomy. Practical lesson 4. Radial, ulnar, arteries, arches and arteries of the hand: topography, branches, and areas of blood supply.	Radial, ulnar, arteries, arches and arteries of the hand: topography, branches, and areas of blood supply.	PO1, PO2	1	work in small groups with anatomical preparations, torso, models, posters, on the interactive panel "Pirogov" and / or solving test and	oral survey, assessment sheet for solving situational problems, assessment sheet for

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					situational tasks. tasks	completing test tasks
	Introduction to the clinic. Practical lesson 3. IHD, myocardial infarction and stroke	Angina pectoris-classification. Angina pectoris of tension, clinic, diagnosis, treatment (medical, surgical), prevention. Unstable angina, clinical forms (first-time tension angina, progressive angina, first-time resting angina). Myocardial infarction. Stroke. Diagnostics. Emergency care	PO2 PO11	1	Performing test tasks, solving clinical problems, performing practical work	Checklist for evaluating practical classes
	Biochemistry. Practical lesson. Biochemistry of the myocardium.	Biochemistry of the myocardium. The main biochemical processes in the myocardium. The role of proteins in maintaining oncotic pressure in the vascular canal.	PO1 PO2	1	seminar, testing	Checklist for evaluating a practical lesson.
	Introduction to the clinic. SROP/SRO2 Additional methods of examination of patients with diseases of the cardiovascular system	Daily blood pressure monitoring (ABPM). Technique for measuring blood pressure and pulse. Holter ECG. Veloergometry. Treadmill test. Indications and contraindications for performing these studies	PO2 PO11	2/4/ 4	Working with electronic information resources. Preparation of a presentation, crossword puzzle, preparation of an intellectual map, preparation of test tasks. Demonstration of practical skills	Protection of presentations, crossword puzzles, smart cards, and test tasks. Assessment by checklist
8	Physiology. Lektion2 . Laws of hemodynamics. Methods of CVS research.	Laws of hemodynamics. Methods of CVS research. Regulation of blood flow through the blood vessels.	PO1	1	review	Answers to control questions
	Physiology. Practical lesson .4 Regulation of cardiac activity of the heart.	Regulation of heart activity. Intracardiac regulatory mechanisms. Extra-cardiac regulatory mechanisms. Humoral regulation of heart activity.	PO1 PO2	1	discuss the main issues of the topic, perform test tasks, solve situational problems.	Oral survey, assessment of test tasks, assessment of solving situational problems
	Histology. Practical lesson#4 Topic: Heart.	Heart. The structure of the heart wall, its membranes, and their tissue composition. Blood vessels of the	PO1, PO2	1	Work in small groups, checklist of	Checklist of practical lesson assessment.

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		heart. Innervation of the heart. Endocardium and its derivatives - heart valves. Myocardium, its typical and atypical muscle tissue, significance in the work of the heart, its morpho-functional characteristics. Epicardium and parietal leaf of the pericardium.			histopreparations, micrographs	
	Introduction to the clinic. Practical lesson 4. Acute coronary and cardiovascular insufficiency.	Causes of occurrence. Classification. Clinical manifestations. Acute vascular insufficiency: syncope, collapse, shock. Emergency care. Diagnostic criteria. Pre-medical assistance.	PO2 PO11	1	Performing test tasks, solving clinical tasks, performing practical work	Checklist for evaluating practical classes
	Biochemistry. SROP/SRO2 . Hormones that regulate blood pressure.	Hormones that regulate blood pressure. Prostaglandins, kallikreins, bradykinins.	PO1 PO2	2/4/ 4	Essay, presentation, analysis of scientific articles on the subject, glossary	Checklist for evaluating SRO
9	Histology. Lecture No.2 Topic: Histological structure of the respiratory system.	Morphofunctional characteristics of the respiratory system. Classification, sources, and course of development. Features of the structure of airways. The bronchial tree. Morphofunctional characteristics of the lung. Respiratory department of the lung. The air-blood barrier.	PO1	1	overview	Answers to control questions
	Anatomy. Practical lesson 5. Abdominal part of the aorta: topography, branches, areas of blood supply.	Abdominal part of the aorta: topography, paired and unpaired visceral and parietal branches, blood supply areas.	PO1, PO2	2	work in small groups with anatomical preparations, torso, models, posters, on the interactive panel "Pirogov" and/or solving test and situational tasks	oral survey, assessment sheet for solving situational tasks, assessment sheet for completing test tasks
	Basics of radiation diagnostics. Practical lesson 2.	Visual anatomy of large vessels. Basic and additional research methods. Angiography. Koronarography	PO2 PO11	1	discussion, working with the provided radiological images	oral survey, discussion of research results, solving situational

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	Radiation diagnostics of large vessels. Angiography. КоронарограCoron arografia.					problems, working with radiological images
	Anatomy. SROP / SRO 3 External iliac artery: topography, branches, blood supply areas.	External iliac artery. Femoral, popliteal, anterior and posterior tibial arteries, foot arteries: topography, branches, blood supply areas.	PO1, PO2	2/4/4	-Preparation and defense of the presentation. - performing a diagram of the course of the artery and blood supply areas	Oral survey. Evaluation sheets for all forms of the completed task.
10	Biochemistry. Lecture Energy metabolism of the myocardium.	Biochemical features of myocardial energy supply. Metabolism in anaerobic and aerobic conditions. Providing energy to tissues and organs in anaerobic and aerobic conditions. Biological oxidation.	PO1	1	Overview	questions of feedback
	Biochemistry. Energy metabolism of the myocardium. Practical lesson.	Energy metabolism of the myocardium. Clinically important myocardial enzymes and other cardiomarkers.	PO1 PO2	1	seminar, situational tasks, testing	Checklist for evaluating a practical lesson.
	Physiology. Practical lesson #5 Basic laws of hemodynamics. Movement of blood through the blood vessels.	Basic laws of hemodynamics. Movement of blood through the blood vessels.	PO1 PO2	2	discussion of the main issues of the topic, performing test tasks, solving situational problems.	Oral survey, assessment of test tasks, assessment of solving situational problems
	Histology. SROP/SRO 2. Border control 1.	Consolidation of the completed material on the topics of lectures, practical classes, SROP and SRO.	PO1 PO2	2/4	Written response to tickets (situational tasks)	RC Assessment checklist
11	Introduction to the clinic. Lecture 2. Diseases of the respiratory system. Diagnosis and first aid	Causes of respiratory diseases. Major respiratory diseases. Diagnostics and first aid for respiratory diseases.	PO2 PO11	1	overview	feedback

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	Anatomy Practical lesson 6. Common iliac artery: topography, branches, areas of blood supply.	Common iliac artery. Internal iliac artery: topography, branches, areas of blood supply.	PO1 PO2	1	work in small groups with anatomical preparations, torso, models, posters, on the interactive panel "Pirogov" and/or solving test and situational tasks	oral survey, assessment sheet for solving situational tasks, assessment sheet for completing test tasks
	Histology. Practical lesson#5 Topic: Nasal cavity, nasopharynx, larynx	, walls of airways. Extrapulmonary air-bearing pathways. Structure of the wall of the airways: nasal cavity, nasopharynx, larynx. Histofunctional features of the mucous membrane.	PO1, PO2	1	Work in small groups, gis checklist of top preparats, micrographic	checklist of practical lesson assessment.
	Introduction to the clinic. Practical lesson 5. Bronchial asthma. Diagnosis and first aid	are risk factors. Clinical manifestations. Asthmatic status. Differential diagnosis of bronchial asthma attack and cardiac asthma. Diagnosis and first aid for suffocation attacks.	PO2 PO11	1	Performing test tasks, solving clinical tasks, performing practical work	Checklist for evaluating practical exercises
	Physiology . SROP/SRO 2 Electrical activity of the myocardium. Methods for studying the activity of the heart. ECG.	Electrical activity of myocardial cells. Mechanical izvukovye manifestations of cardiac activity. ECG.	PO1 PO2	2/4/ 4	Preparation and protection of presentations.	Checklist for evaluating SROs.
12	Anatomy. Lecture 3. The system of the superior and inferior vena cava, the sources of their formation.	Superior and inferior vena cava, portal vein: formation, tributaries, topography.	PO1	1	Review	Feedback (control questions)
	Physiology. Practical lesson 6 Regulation of the vascular system.	Vasomotor center. Reflex and humoral regulation of blood vessels.	PO1 PO2	1	discuss the main issues of the topic, perform test tasks, solve situational problems.	Oral survey, assessment of test tasks, assessment of solving situational problems

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	Biochemistry. Practical lesson. Lipid	exchange is the exchange of lipids. Formation and metabolism of transport lipoproteins.	PO1 PO2	1	seminar, situational tasks, testing.	Checklist for evaluating a practical lesson.
	Introduction to the clinic. Practical lesson 6. Acute upper respiratory tract obstruction and pulmonary edema. Acute and chronic respiratory failure	Symptoms, classification, degrees, and risk factors. Clinical manifestations. Aspiration. First aid for acute upper respiratory tract obstruction and pulmonary edema. Respiratory distress syndrome. Exudative pleurisy. Pneumothorax. First aid for acute and chronic respiratory failure. Special feature for Covid-19. Familiarization with the spricase from the Ministry of Health of the Republic of Kazakhstan 2021 May 27 No. 47	RO2 RO1 1	1	Performing test tasks, solving clinical problems, performing practical work	Checklist for evaluating practical classes
	Fundamentals of radiation diagnostics. SROP/SRO1 Use of basic radiation research methods in the diagnosis of the heart and large vessels	Radiation methods for the study of the heart and large vessels Basic X-ray methods for the study of heart organs and large vessels . Basic principles of X-ray and ultrasound examination of the heart	PO11 PO2	2/4/ 4	preparation of presentations, drawing up crosswords, test tasks, situational tasks, working with radiological images.	defending presentations, solving crosswords, test tasks, situational tasks, and working with radiological images.
13	Physiology. Lecture 3 Physiology of the respiratory system.	Physiology of the respiratory system. External breathing. Transport of gases by blood. Methods of breath research.	PO1	1	overview	Answers to control questions
	Anatomy. Practical lesson 7. Superior vena cava: formation, tributaries, topography. Unpaired and semi-paired veins: topography, tributaries.	Superior vena cava: formation, tributaries, topography. Unpaired and semi-paired veins: topography, tributaries.	PO1 PO2	2	work in small groups with anatomical preparations, torso, models, posters, on the interactive panel "Pirogov" and/or solving test and situational tasks	oral survey, assessment sheet for solving situational tasks, assessment sheet for completing test tasks

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14	Histology. Practical lesson#6 Topic : Trachea and main bronchi.	Extrapulmonary airways. Structure of the airway wall: trachea and main bronchi. Histofunctional features of the mucous membrane.	PO1, PO2	1	Work in small groups, gis checklistof-topreparats, micrographic	checklist of practical lesson assessment.
	Physiology. SROP/SRO3 Factors that ensure the movement of blood in the vessels.Volume velocity of blood flow.	Blood pressure. Arterial pulse. Blood cycle time. Systolic and minute blood volume. Methods for determining systolic and minute blood volume.	PO1 PO2	2/4/ 4	Preparation and protection of presentations.	Checklist for evaluating SRO.
	Anatomiya. Lecture 4. Morphofunctional characteristics of the respiratory system organs.	The nasal cavity. The larynx. Trachea. The bronchi. Structure of the lungs. Branching of the bronchi. Segmental structure of the lungs. The pleura.	PO1	1	Review	Feedback (control questions)
	Physiology. Practical lesson 7 External breathing.Exchange of gases in the lungs.	External breathing. Exchange of gases in the lungs.	PO1 PO2	2	discussion of the main issues of the topic, performing test tasks, solving situational problems.	Oral survey, assessment of test tasks, assessment of solving situational problems
	Basics of radiation diagnostics. Practical lesson3 Ventriculography Cardiac scintigraphy Magnetic resonance imaging. Multispiral computed tomography.	Aortography. Ventriculography Scintigraphy of the heart. Magnetic resonance imaging. Multispiral computed tomography.	PO1 PO2	1	discussion, working with the provided radiological images	oral survey, discussion of research results, solving situational problems, working with radiological images
	Anatomy. SROP / SRO 4. Inferior vena cava: formation, tributaries, topography.	Inferior vena cava: formation, tributaries, topography.	PO1 PO2	2/4/ 4	-Preparation and defense of the presentation. - implementation of the scheme of the course of the artery, veins and blood supply	An oral survey. Evaluation sheets for all forms of the completed task.

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					areas, venous outflow.	
15	Anatomy. Practical lesson 8. Portal vein: formation, topography, tributaries.	Portal vein: formation, topography, tributaries.	PO1 PO2	1	work in small groups with anatomical preparations, torso, models, posters, on the interactive panel "Pirogov" and/or solving test and situational tasks	oral survey, assessment sheet for solving situational tasks, assessment sheet for completing test tasks
	Introduction to the clinic. Practical lesson 7. Study of the function of external respiration	Spirometry. Spirography. Peak flowmetry. Indications and contraindications. Indicators of the study of the function of external respiration in normal and pathological conditions. Algorithm of preparation for conducting research. Algorithm for conducting studies of external respiration functions	PO2 PO11	1	Performing test tasks, solving clinical problems, performing practical work	Checklist for evaluating practical classes
	Biochemistry. Practical lesson on metabolism in the lungs.	Features of metabolism in the lungs. Metabolism	PO1 PO2	1	seminar, situational tasks	Checklist for evaluating practical exercises.
	Histology of SROP/SRO No. 3 Bronchi and bronchioles.	Lungs. Intrapulmonary airways: bronchi and bronchioles. Dependence of the structure of the bronchial wall and bronchioles on their caliber.	PO1, PO2	1/11	Working in small groups, defending a presentation, compiling a glossary.	Checklist for evaluating SRO
	Biochemistry. SROP / SRO Surfactant system (phospholipids, proteins, polysaccharides)	Energy-dependent processes in the lungs. Surfactant system (phospholipids, proteins, polysaccharides)	PO1 PO2	2/3/ 3	presentation, analysis of scientific articles on the subject, glossary	Checklist for assessing SRO
16	Fundamentals of radiation diagnostics. Practical lesson 4 Radiation diagnostics of respiratory organs. Basic and additional research methods.	Radiation anatomy of the respiratory system and organs. Basic and additional research methods. The main radiological symptoms and syndromes of the lungs. Digital radiography Digital radioscopy Digital fluorography.	PO2 PO11	1	discussion, working with the provided radiological images	oral survey, discussion of research results, solving situational problems, working with

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						radiological images
	Histology. Practical lesson #7 Topic: Respiratory department. Acinus of the lung.	Acinus as a morphofunctional unit of the lung. Structural components of the acinus. Structure of the alveolar wall. Types of pneumocytes, their histofunctional characteristics.	PO1, PO2	1	Rabota in small groups, checklist of histopreparation, histopreparations, micrographic	Checklist of practical lesson assessment.
	Biochemistry. Practical lesson	Gas exchange. Transport of carbon dioxide to the lungs.	PO1 PO2	1	seminar, testing	Checklist for evaluating a practical lesson.
	Anatomy. SROP / SRO 5. Cava-caval and porto-caval anastomoses.	Cava-caval and porto-caval anastomoses.	PO1 PO2	2/3/3	-Preparation and defense of the presentation. - implementation of the scheme of the course of veins and areas of venous outflow.	An oral survey. Evaluation sheets for all forms of the completed task.
	Physiology of SROP / SRO 4 Features of respiration in different conditions.	Breathing during muscle work. Breathing at low and high atmospheric pressure. Artificial respiration.	PO1 PO2	1/2/2	Preparation and protection of presentations.	Checklist for evaluating SRO.
17	Anatomiya. Practical lesson 9. Respiratory system organs: structure, topography, and functions.	The nasal cavity. paranasal sinuses. The larynx. Laryngeal cartilage. Laryngeal muscles. Laryngeal cavity. Age-specific features.	PO1, PO2	2	work in small groups with anatomical preparations, torso, models, posters, on the interactive panel "Pirogov" and/or solving test and situational tasks	oral survey, assessment sheet for solving situational tasks, assessment sheet for completing test tasks
	Histology. Practical lesson #8 Topic: Aeroheumatic barrier. The pleura.	Aeroheumatic barrier and its significance in gas exchange. Macrophages of the lung. Blood supply and innervation of the lung. Regenerative potencies of the respiratory system. The pleura.	PO1, PO2	1	Work in small groups, gis checklist of topreparats, micrographic	checklist of practical lesson assessment.

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	Histology. SROP/SRO4 Surfactant-alveolar complex.	Structural and chemical organization and function of the surfactant-alveolar complex. Structure of interalveolar partitions	PO1, PO2	1/33	Work in smallgroups, presentation protection, glossary compilation.	Checklist for SRO assessment
	Introduction to the clinic. SROP / SRO 3. Clinical methods of examination of patients with respiratory diseases	General examination of a patient with respiratory diseases. Collecting anamnesis. The sequence of conducting a general examination of the patient: conditions, rules and techniques. Main complaints. Preparation of the patient for laboratory and instrumental research methods.	RO2 RO1 1	2/3/ 3	Working with electronic information resources. Preparation of a presentation, crossword puzzle, preparation of an intellectual map, preparation of test tasks. Demonstration of practical skills	Protection of presentations, crossword puzzles, smart cards, and test tasks. Assessment by checklist
18	Physiology. Practical lesson 8 Regulation of respiration.	Regulation of respiration. Respiratory center. The role of chemo and mechanoreceptors in the regulation of respiration.	PO1 PO2	1	discuss the main issues of the topic, perform test tasks, solve situational problems.	Oral survey, assessment of test tasks, assessment of solving situational problems
	Biochemistry. Practical lesson Tissue respiration	Tissue respiration. Electron transport chain (ETS). Oxidative phosphorylation.	PO1 PO2	1	seminar, testing	Checklist for evaluating a practical lesson.
	Introduction to the clinic. Practical lesson 8. Cardiopulmonary resuscitation. Clinical and biological death. Rules for handling the corpse	Techniques of artificial ventilation and indirect heart massage. The Safar method. The concept of the patient's terminal condition. Stages of the terminal state and their main clinical manifestations. The concept of clinical and biological death. Signs of clinical death. The concept of resuscitation. Rules for handling a corpse. Psychological and infectious safety measures when handling a corpse. Transportation of the corpse to a special room for temporary storage.	PO2 PO8	1	Performing test tasks, solving clinical tasks, performing practical work	Checklist for evaluating practical classes

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	Anatomy. SROP / SRO 6 Pleura. The pleural cavity. Pleural sinuses. The mediastinum.	The pleura. Pleural leaflets. The pleural cavity. Sinuses. The mediastinum.	PO1 PO2	2/3/ 3	-Preparation and defense of the presentation	Oral survey. Evaluation sheets for all forms of the completed task.
	Fundamentals of radiation diagnostics of SROP/SRO Radiation diagnostics of large vessels. Dopplerography, principles of operation. Preparation of patients for research	Visual diagnostics of large vessels. Dopplerography, principles of operation. Preparation of patients for research	PO11 PO2	1/1. 5	preparation of presentations, drawing up crosswords, test tasks, situational tasks, working with radiological images.	defending presentations, solving crosswords, test tasks, situational tasks, and working with radiological images.
19	Anatomy. Practical lesson 10. Respiratory system organs: structure, topography, and functions.	Trachea. The bronchi. Structure of the lungs. Branching of the bronchi. Segmental structure of the lungs. The pleura. Age-specific features.	PO1 PO2	2	work in small groups with anatomical preparations, torso, models, posters, on the interactive panel "Pirogov" and/or solving test and situational tasks	oral survey, assessment sheet for solving situational tasks, assessment sheet for completing test tasks
	Physiology. SROP/SRO5. Border control 2.	Consolidation of the completed material on the topics of lectures, practical classes, SROP and SRO.	PO1 PO2	2/2, 5	Written response to tickets (situational tasks)	RC Assessment checklist

9.1	Lectures	Introductory and review lectures (Answers to control questions) Overview
and illustrative 9.2	Practical classes	Working in small groups with anatomical preparations, torso, models, tables, tablets, posters, on the interactive panel "Pirogov", performing practical work, seminar, situational (clinical) tasks, pworking in small groups, filling out aout a

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		checklist of histopreparations, microphotographs, discussion, working with the provided radiological images, completing test tasks.				
9.3	SROP / SRO		Consultation on the most difficult issues of the curriculum when performing SRO, working with educational literature, passing SRO in the form of:-Description of the anatomical preparation on the anatomical table "Pirogov". Preparation and defense of the abstract and presentation Work in small groups, compilation of a glossary, etc., analysis of scientific articles on the subject, compilation of crosswords, test tasks, situational tasks, work with radiological images, work with electronic information resources, preparation of an intelligent map.			
9.4	Boundary control		Written answer to questions of situational tasks			
10.10.1	Criteria for evaluating the results of the discipline					
10.1	№ PO No	. Name	of the training results Unsatisfactory	Satisfactory	Satisfactory	Excellent
	PO1	Knows and understands the structural features of the heart, lungs, blood vessels and other elements of the cardio-respiratory system. It is able to describe the microscopic structure of organs and tissues of the cardio-respiratory system.	Does not know or understand the structural features of the heart, lungs, blood vessels, and other elements of the cardio-respiratory system . I am not inclined to describe the microscopic structure of organs and tissues of the cardio-respiratory system.	Makes mistakes when describing the structural features of the heart, lungs, blood vessels, and other elements of the cardio-respiratory system. It is able с ошибками to describe the microscopic structure of organs and tissues of the cardiorespiratory system with errors.	Explains structural features of the heart, lungs, blood vessels, and other elements of the cardiorespiratory-system. It is able to give a complete description of the microscopic structure of organs and tissues of the cardiorespiratory system.	Demonstrates knowledge and understanding of the structural features of the heart, lungs, blood vessels, and other elements of the cardiorespiratory system. It is able to clearly describe the microscopic structure of organs and tissues of the cardio-respiratory system.

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	PO2	Knows the basic physiological processes in the heart and lungs, understands the regulation of respiration and heart activity. It is able to explain the mechanisms of gas exchange and transport of oxygen and carbon dioxide.	Does not know the basic physiological processes in the heart and lungs, does not understand the regulation of respiration and heart activity. It is not able to explain the mechanisms of gas exchange and transport of oxygen and carbon dioxide.	Makes mistakes when describing the main physiological processes in the heart and lungs, explaining the regulation of respiration and heart activity. The method of explanation with errors explains the mechanisms of gas exchange and transport of oxygen and carbon dioxide.	Describes the main physiological processes in the heart and lungs, including the regulation of respiration and cardiac activity. The method of explanation fully explains the mechanisms of gas exchange and transport of oxygen and carbon dioxide.	, demonstrates the basic physiological processes in the heart and lungs, and deeply understands the regulation of respiration and cardiac activity. The method allows drawing the mechanisms of gas exchange and transport of oxygen and carbon dioxide.
	PO3	Knows the main metabolic pathways that affect the function of the cardio-respiratory system. Understands biochemical processes related to energy exchange in the heart muscles, respiration and gas exchange.	Does not know the main metabolic pathways that affect the function of the cardio-respiratory system. Does not understand the biochemical processes associated with energy exchange in the heart	Does not fully know the main metabolic pathways that affect the function of the cardiorespiratory system. Poorly understands the biochemical processes associated with energy exchange in the muscles of the heart, breathing and gas exchange.	Explains the main metabolic pathways that affect the function of the cardiorespiratory system. Well understands and understands the biochemical processes associated with energy metabolism in the muscles of the	Applies knowledge about the main metabolic pathways that affect the function of the cardiorespiratory system. Demonstrates an understanding of the biochemical processes involved in energy

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			muscles, breathing and gas exchange.		heart, breathing and gas exchange.	metabolism in the heart muscles, respiration, and gas exchange.
	RO4 is	able to apply knowledge about the cardiorespiratory system in a clinical context, acquire the skills of collecting a clinical history and physical examination of patients with diseases of the cardiorespiratory system for first aid, and is able to interpret the results of laboratory and instrumental studies.	Does not know how to apply knowledge about the cardiorespiratory system in a clinical context, has not acquired the skills to collect a clinical history and physical examination of patients with diseases of the cardiorespiratory system for first aid, is not able to interpret the results of laboratory and instrumental studies.	He is not fully able to apply knowledge about the cardiorespiratory system in a clinical context, collects a clinical history and physical examination of patients with diseases of the cardiorespiratory system for first aid with errors, and is poorly oriented in interpreting the results of laboratory and instrumental studies.	Lists information about the cardiorespiratory system in a clinical context, collects a clinical history and physical examination of patients with diseases of the cardiorespiratory system with оказанием first aid, and is well-versed in interpreting the results of laboratory and instrumental studies	, demonstrates fluently knowledge of the cardiorespiratory system in a clinical context, collects clinical history and physical examinations of patients with diseases of the cardiorespiratory system with first aid, is well oriented in interpreting the results of laboratory and instrumental studies
	RO5	, and is able to analyze data from visual diagnostic methods, such as radiography, electrocardiography	He is not able to analyze data from visual diagnostic methods, such as	Not fully able to analyze the data of visual diagnostic methods, such as radiography, electrocardiography	Охарактеризовывает data of visual diagnostic methods, such as radiography,	Compares and analyzes data from visual diagnostic methods, such as

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Oral response

Form of control	Evaluation	Assessment Evaluation criteria
Oral response	Perfectly Matches the grades: A (4.0; 95-100%); A- (3.67; 90-94%)	The student did not make any mistakes during the answer, was guided in the theories, concepts and directions of the studied discipline, gave them a critical assessment, and also used scientific achievements of other disciplines.
	Well Corresponds well to the estimates: B+ (3.33; 85-89%) B (3.0; 80-84%) B - (2.67; 75-79%) C+ (2.33; 70-74%)	The student did not make any gross mistakes during the answer, but made inaccuracies and unprincipled mistakes corrected by himself, and managed to systematize the program material with the help of the teacher.
	Satisfactorily Meets the following estimates: C (2.0; 65-69%) C- (1.67; 60-64%) D+ (1.33; 55-59%) D- (1.0; 50-54%)	The student made fundamental mistakes during the answer, limited himself only to the educational literature specified by the teacher, and experienced great difficulties in systematizing the material.
	Unsatisfactory FX (0.55; 25-44%) F (0; 0-24%)	The student made gross mistakes during the answer, did not work through the main literature on the topic of the lesson, and failed to use scientific terminology on histology and physiology.

Checklist for evaluating small group

Working in small groups	Perfectly Matches the following grades: A (4.0; 95-100%); A- (3.67; 90-94%)	Students assigned to a small group actively participated in the discussion of the main issues of the topic, at this time showed their logical thinking skills, and fully correctly answered questions during the discussion.
	Well Corresponds well to the estimates: B+ (3.33; 85-89%) B (3.0; 80-84%) B - (2.67; 75-79%) C+ (2.33; 70-74%)	Students assigned to the subgroup took an active part in the discussion of the main issues of the topic. During the discussion, they were able to solve the problem by making mistakes that were corrected by the students
	of the subgroup themselves. C (2.0; 65-69%) C- (1.67; 60-64%) D+ (1.33; 55-59%) D- (1.0; 50-54%)	Students enrolled in a small group were passive in discussing the main issues of the topic, while students from a small group performed it using reference literature/sources, making weak and inconsistent mistakes.

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	Unsatisfactory FX (0.55; 25-449%) F (0; 0-224%)	We couldn't find the correct answers to the main questions of the topic, didn't participate in the work of the group, made mistakes and inaccuracies, and didn't use scientific terminology when answering.
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Evaluation sheet
Criteria for evaluating the description of anatomical preparations

F.Full name of the student _____

№ Step number	Criteria for evaluating steps	Excellent 90-100 Gave a clear, comprehensive answer, correctly named organs in Latin and Greek	Good 70-89 Gave a fairly complete answer, but was confused in terminology; made minor inaccuracies	Satisfied 50-69 Partially completed the task: confused in the answer, did not give full names of anatomical structures	Failed 0-49 Failed the task: failed to name anatomical structures
1.	, the student recognizes the organ, gives its name in Latin, if necessary-in Greek	18-20	14-17,8	10-13,8	0-9,8
2.	The student describes the holotopy of the organ using professional terminology	18-20	14-17,8	10-13,8	0-9,8
3.	The student describes the skeletotopy of the organ using professional terminology	18-20	14-17, 8	10-13,8	0-9. 8
4.	The student describes the organ syntopy using professional terminology	18-20	14-17,8	10-13,8	0-9,8
5.	Describes the anatomical structure of the organ.	18-20	14-17,8	10-13,8	0-9,8

The maximum score is 100.Total points _____Teacher's signature_____

Completing test tasks (testing)

Form of control	Evaluation	Assessment Evaluation criteria
Completion of test tasks (testing)	Perfectly Matches the ratings of: A (4.0; 95-100%); A- (3.67; 90-94%)	The student completed 90-100% of the test tasks correctly.
	Well Corresponds well to the estimates: B+ (3.33; 85-89%) B (3.0; 80-84%) B - (2.67; 75-79%) C+ (2.33; 70-74%)	The student completed 75-89% of the test tasks correctly.
	Satisfactorily	The student completed 50-74% of the test tasks correctly.

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	Meets the following estimates: C (2.0; 65-69%) C- (1.67; 60-64%) D+ (1.33; 55-59%) D- (1.0; 50-54%)	
	Unsatisfactory FX (0.55; 25-449%) F (0; 0-224%)	The student completed less than 50% of the test tasks correctly.

Solving situational (clinical) problems

Form of control	Evaluation	Assessment Evaluation criteria
Solving situational problems	Perfectly Matches the following assessments: A (4.0; 95-100%); A- (3.67; 90-94%)	He actively participated in solving situational problems, showed original thinking, showed deep knowledge of the material, and used scientific achievements of other disciplines in the discussion.
	Well Corresponds well to the estimates: B+ (3.33; 85-89%) B (3.0; 80-84%) B - (2.67; 75-79%) C+ (2.33; 70-74%)	Actively participated in the work, showed knowledge of the material, made unprincipled inaccuracies or errors corrected by the student himself.
	Satisfactorily Meets the following estimates: C (2.0; 65-69%) C- (1.67; 60-64%) D+ (1.33; 55-59%) D- (1.0; 50-54%)	When working in a group, he was passive, made inaccuracies and fundamental mistakes, and had great difficulties in organizing the material.
	Unsatisfactory FX (0.55; 25-449%) F (0; 0-224%)	He did not take part in the work of the group, answering questions from the teacher, made fundamental mistakes and inaccuracies, and did not use scientific terminology in his answers.

Assessment sheet

Criteria for assessing the mastery of practical skills

Full name of the student _____

n/p	a Step Evaluation Criteria	Level			
		Excellent 90-100	Good 70-89	Success 50-69	Failure 0-49

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1.	Correct location of the organ on the torso, skeleton and on a living person	18-20	14-17,8	10-13,8	0-9,8
2.	The student must give the full name of the organ and describe its general structure	18-20	14-17,8	10-13,8	0-9,8
3.	The student should name the structural elements of this organ.	18-20	14-17,8	10-13,8	0-9,8
4.	After listing the structural elements of the organ, the student should show it on posters, tablets and give a description of it.	18-20	14-17,8	10-13,8	0-9,8
5.	During the description of the organ and its structural elements, the student should mention the age-related features of the organ	18-20	14-17,8	10-13,8	0-9,8

The maximum score is 100. Total points _____ Teacher's signature _____

Evaluation sheet

Criteria for evaluating the implementation of the scheme (arterial movements)

Full name of the student _____

n/p	a Step evaluation criteria	Level			
		of Excellence but 90-100	Good 70-89	Udovl Good 50-69	Bad 0-49
1.	The student must correctly find and draw a diagram of the arterial	passages 18-20	14-17,8	10-13,8	0-9,8
2.	The student must give the full name of the arteries in Latin.	18-20	14-17,8	10-13,8	0-9,8
3.	The trainee must correctly indicate the topography, projection of the arteries	18-20	14-17,8	10-13,8	0-9,8
4.	Must list all branches of the arteries	18-20	14-17,8	10-13,8	0-9,8
5.	The student must specify the areas of blood	supply 18-20	14-17,8	10-13,8	0-9,8

The maximum score is 100. Total points _____ Teacher's signature _____

Evaluation sheet

Criteria for evaluating a presentation in multimedia format

F.Full name of the student _____

№	Criterion no	. Level, score in points			
		excellent 90-100	good 70-89	success 50-69	failure 0-49

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1.	Availability of a title slide with a title, a presentation plan, a sufficient number of slides, a list of references and Internet sources.	9-10	7-8,9	5-6,9	0-4,9
2.	Correspondence of the presentation content to the topic and tasks set.	9-10	7-8,9	5-6,9	0-4,9
3.	Arrange the slides in a logical sequence.	9-10	7-8,9	5-6,9	0-4,9
4.	Style of presentation of the material (conciseness, clear wording, structure).	9-10	7-8,9	5-6,9	0-4,9
5.	Use of modern sources of information in sufficient quantity.	9-10	7-8,9	5-6,9	0-4,9
6.	Ability to generalize the material, make clear and clear conclusions.	9-10	7-8,9	5-6,9	0-4,9
7.	The level of orientation in the presentation material.	9-10	7-8,9	5-6,9	0-4,9
8.	Ability to report clearly, competently, and consistently.	9-10	7-8,9	5-6,9	0-4,9
9.	Ability to defend your position and respond constructively to criticism.	9-10	7-8,9	5-6,9	0-4,9
10	The quality of slide design (colorful, visual, etc.) .9	-10	7-8,9	5-6,9	0-4,9

The maximum score is 100. Total points _____ Teacher's signature _____

Evaluation sheet
Evaluation criteria for X ray image description
 Student's full name _____

n/p	a Step Evaluation Criteria	Level			
		Excellent 90-100	Good 70-89	Success 50-69	Failure 0-49
1.	The student must correctly identify the research area	22,5-25	17,5-22,25	12,5-17,25	0-12,25
2.	The student must correctly determine the projection of the image (front, side, back).	22,5-25	17,5-22,25	12,5-17,25	0-12,25
3	The trainee must correctly indicate the anatomical structures of the bone or joints	being examined 22,5-25	17,5-22,25	12,5-17,25	0-12,25
4.	The trainee should be able to determine the age characteristics of the organ under study.	22,5-25	17,5-22,25	12,5-17,25	0-12,25

The maximum score is 100. Total points _____ Teacher's signature _____

Checklist for evaluating a practical histology class

Assessment criteria	Level
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no.		Excellent	Well	Satisfied but	Failed	
1	Answers questions of the individual Quizizz test	40	28	20	0	
2	Answers questions of the oral survey (small groups)	20	14	10	0	
3	Fills in tables	20	14	10	0	
4	Performs situational tasks	20	14	10	0	
	Total:	100	70	50	0	

Evaluation sheet
Evaluation criteria for X ray image description
 Student's full name _____

n/p	a Step Evaluation Criteria	Level			
		Excellent 90-100	Good 70-89	Success 50-69	Failure 0-49
1.	The student must correctly identify the research area	22,5-25	17,5-22,25	12,5-17,25	0-12,25
2.	The student must correctly determine the projection of the image (front, side, back).	22,5-25	17,5-22,25	12,5-17,25	0-12,25
3	The trainee must correctly indicate the anatomical structures of the bone or joints	being examined 22,5-25	17,5-22,25	12,5-17,25	0-12,25
4.	The student should be able to determine the age characteristics of the organ under study.	22,5-25	17,5-22,25	12,5-17,25	0-12,25

The maximum score is 100. Total points _____ Teacher's signature _____

Written response to X-ray assessment questions

#	Evaluation criteria	Scores
1	The student showed original thinking, showed deep knowledge of the material, and used scientific achievements from other disciplines in the answer. I used scientific terminology.	27-30
2	The student showed knowledge of the material, made unprincipled inaccuracies corrected by the student himself. I used scientific terminology.	21-26
3	The student made inaccuracies and unprincipled mistakes during the answer, used scientific terminology, had great difficulties in systematizing the material, and needed the help of a teacher.	15-20
4	The student did not answer the teacher's questions, made fundamental mistakes and inaccuracies, and did not use scientific terminology in their answers.	0-14

Performing laboratory work on physiology

#	Evaluation criteria	Scores
1	Completed practical and laboratory work in a timely manner and submitted reports on them without any errors, took an active part in the discussion of the results of the work, made reasonable conclusions, showed original thinking	27-30

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2	Completed practical and laboratory work in a timely manner and submitted reports on them without any fundamental comments, took an active part in the discussion of the results of work	21-26
3	completed practical and laboratory work in a timely manner and submitted reports on them. During the work, he was not active, needed the help of a teacher	for 15-20
min ute s, did	not pass reports on practical work in time, made fundamental mistakes in their implementation. I did not complete all the practical work provided for in the program. Did not participate in the discussion of the results of the work.	0-14

Practical skills on introduction to the clinic

Form of control	Evaluation	Assessment Evaluation criteria
Practical skills	Perfectly Matches the points: A (4.0; 95-100%) A- (3.67; 90-94%)	The student has excellent practical skills: he knows the method of performing practical skills quite accurately, has sufficient skills in patient care.
	Good match for scores: B+ (3.33; 85-89%) B (3.0; 80-84%) B - (2.67; 75-79%) C+ (2.33; 70-74%)	The student has good practical skills: he does not know the method of performing practical skills accurately enough, he has sufficient skills in patient care.
	Satisfactorily Corresponds to the following points: C (2.0; 65-69%) C- (1.67; 60-64%) D+ (1.0; 50-54%)	The student has satisfactory practical skills: he knows the main provisions of the methodology for performing practical skills, but performs patient care skills with gross errors.
	Unsatisfactorily Corresponds to the scores FX (0.5; 25-49%) F (0; 0-24 %)	The student does not have a sufficient level of practical skills (does not know and is not able to apply the skills of patient care).

Analysis of scientific articles:

#	Evaluation criteria	Points
1	The work was completed accurately and submitted on time, written independently on at least 3 pages of printed text. Thoughts on the problem are presented clearly and well-reasoned. In the text of the work, references to authors are indicated everywhere. When protecting the work, the text does not read, but tells. Confidently and accurately answers all the questions asked. The paper uses only articles from no more than 5 years ago.	27-30

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2	The work was completed accurately and submitted on time, written independently on at least 3 pages of printed text. Thoughts on the problem are clearly stated, but without arguments. In the text of the work, references to authors are indicated everywhere. When protecting the work, the text does not read, but tells. When answering questions, it makes unprincipled mistakes. The paper uses articles from no more than 5 years ago.	21-26
3	The work was completed accurately and submitted on time, written independently on at least 2 pages of printed text. Thoughts on the problem are presented in a scattered manner, without arguments. In the text of the work, references to authors are not indicated everywhere. When protecting the work, the text reads. Hesitantly answers questions, makes fundamental mistakes. The paper uses articles from more than 5 years ago.	15-20
4	The work is written in less than 2 printed texts. Thoughts are presented in a scattered manner, without arguments. There are no references to the authors in the text of the work. When protecting the work, the text reads. When answering questions, he makes gross mistakes and doesn't know his way around the material. The paper uses articles from more than 5 years ago.	0-14

Preparation of a written creative work (essay)

№	Evaluation criteria	Points
1	The content of the work fully corresponds to the topic; the topic is revealed in a deep and reasoned manner. With a triple composition, logical and consistent presentation of thoughts. The essay problem is clearly formulated. There are no actual errors. The conclusion contains conclusions that logically follow from the content of the main part.	27-30
2	Quite fully and convincingly reveals the topic with minor deviations from it. The thesis corresponding to the topic of the essay is clearly formulated. In the main part, it is logical, connected, but insufficiently fully proves the thesis put forward, there are isolated factual inaccuracies.	21-26
3	A correct but one-sided or incomplete answer to the topic is given. Omitted deviations from it or individual errors in the presentation of factual material. The material is presented quite logically, but there are some violations of the sequence of expression of thoughts. Conclusions do not fully correspond to the content of the main part.	15-20
4	The topic is completely undisclosed, which indicates a superficial knowledge. It is characterized by a random arrangement of the material, lack of communication between the parts. It differs in the presence of gross speech errors.	0-14

Form of control	Evaluation	Rating Evaluation criteria
Working with the provided images	Perfectly Matches the ratings: A (4.0; 95-100%); A- (3.67; 90-94%)	Selects the optimal method of radiation examination. Defines a complete list of indications and contraindications for radiation testing. Tells and shows the X-ray anatomy of the studied area, the projection of the image.
	Well corresponds to the estimates: B+ (3.33; 85-89%); B (3.0; 80-84%)	Selects the optimal method of radiation examination. When determining the indication and contraindication to radiation testing, it makes minor errors. Determines the X-ray anatomy of the studied area, the projection of the image.

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	B - (2.67; 75-79%) C+ (2.33; 70-74%)	
	Satisfactorily Meets the following estimates: C (2.0; 65-69%) C- (1.67; 60-64%) D+ (1.0; 50-54%)	Selects the optimal method of radiation examination. When determining the indication and contraindication to radiation testing, it makes gross mistakes. Determines the X-ray anatomy of the examined area not in full.
	Unsatisfactorily Corresponds to the rating: FX (0.5; 25-49%) F (0; 0-24 %)	Can't find the optimal radiotherapy method. When determining the indication and contraindication to radiation testing, it makes gross mistakes. When determining the X-ray anatomy and projection of the image, it makes gross errors.

Form of control	Evaluation	Assessment Evaluation criteria
Crossword	Puzzle Perfectly Matches the grades: A (4.0; 95-100%); A- (3.67; 90-94%)	It is set if the student has composed 7 or more words, the words fit together 4 or more times, there are no errors in the crossword questions, the questions are composed correctly, logically and determine the required answer, and the design meets the requirements.
	Well Matches well with the following grades: B+ (3.33; 85-89%); B (3.0; 80-84%); B- (2.67; 75-79%); C+ (2.33; 70-74%);	Set if the student has completed a 7-word crossword puzzle, the words fit together 3 times, in crossword questions there are no fundamental errors, the questions are written correctly, but there are minor inaccuracies, and the design meets the requirements.
	Satisfactorily Meets the following estimates: C (2.0; 65-69%); C- (1.67; 60-64%); D+ (1.0; 50-54%); D-(1.0; 50-54%)	It is set if the student has completed a 7-word crossword puzzle, the words fit together 2 times, and there are inaccuracies or errors in the crossword questions.
	Unsatisfactorily Corresponds to the assessment of FX (0.5; 25-49%); F (0; 0-49%)	This is set if the student has completed a crossword puzzle with less than 7 words, and the words fit together less than 2 times (or do not fit together). There are fundamental, gross errors in the crossword questions.

Checklist for evaluating SRO in histology

#	Evaluation criteria	Level			
		Excellent	Well	Satisfied	Notbad
1	Evaluation of histological micropreparation protection	40	28	20	0

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2	Evaluation of electronic micrography protection	40	28	20	0
3	Glossary compilation evaluation	20	14	10	0
	Total:	100	70	50	0

Preparation and protection of histological micro-preparations and micrographs

Form Control form	Evaluation	Evaluation Evaluation criteria
Preparation and protection of the presentation of histological micro-preparations and micrographs	Perfectly Matches the ratings of: A (4.0; 95-100%); A- (3.67; 90-94%)	The student prepared a presentation of 3 micro-preparations and 3 microphotographs on the topic at the appointed time, independently, accurately, with a volume of at least 6 informative tables, using at least 5 literary sources and having a detailed plan, provided diagrams, tables and figures corresponding to the topic, demonstrated deep knowledge of the topic during the defense and answered all the questions correctly questions asked.
	Well corresponds to the grades: B+ (3.33; 85-89%); B (3.0; 80-84%); B- (2.67; 75-79%); C+ (2.33; 70-74%);	The student prepared a presentation of 3 micro-preparations and 3 microphotographs on the topic at the appointed time, independently, accurately, with a volume not exceeding at least 6 informative tables, using at least 5 literary sources and having a detailed plan, provided diagrams, tables and figures corresponding to the topic, demonstrated good knowledge of the topic during the defense, and made minor mistakes when answering questions.
	Satisfactorily Meets the following estimates: C (2.0; 65-69%); C- (1.67; 60-64%); D+ (1.0; 50-54%); D-(1.0; 50-54%)	The student prepared a presentation of 3 micro-preparations and 3 microphotographs on the topic at the appointed time, independently, but inaccurately, with a volume of at least 6 informative tables, 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.
	Unsatisfactorily Corresponds to the assessment of FX (0.5; 25-49%); F (0; 0-49%)	The student did not prepare a presentation of 3 micro-preparations and 3 microphotographs on the topic at the appointed time, or prepared it at the appointed time, but not independently, inaccurately, with a volume of less than 6 informative tables, without specifying literary sources, in the absence of a plan, when answering questions, made gross mistakes or could not answer questions and did not defend the work.

Checklist for border control Control

Form of control	Evaluation	Assessment Evaluation criteria
	Perfectly Matches	This is set if the student did not make any mistakes or inaccuracies during the response. Focuses on the theories, concepts and directions of the discipline being studied and

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Written ticket survey (clinical tasks) and testing	the scores: A (4.0; 95-100%) A- (3.67; 90-94%)	gives them a critical assessment. Completing test tasks by 90-100%.
	Good match for scores: B+ (3.33; 85-89%) B (3.0; 80-84%) B - (2.67; 75-79%) C+ (2.33; 70-74%)	It is put in the event that the student did not make any gross mistakes in the answer, made unprincipled inaccuracies or fundamental errors corrected by the student himself, and managed to systematize the program material with the help of the teacher. Performs 70-89% of test tasks.
	Satisfactorily Corresponds to the following points: C (2.0; 65-69%) C- (1.67; 60-64%) D+ (1.0; 50-54%)	It is put in the event that the student made inaccuracies and unprincipled mistakes during the answer, was limited only to the educational literature specified by the teacher, and had great difficulties in systematizing the material. Performs 50-69% of test tasks.
	Unsatisfactorily Corresponds to the scores FX (0.5; 25-49%) F (0; 0-24 %)	It is put in the event that the student made fundamental mistakes during the answer, did not work through the main literature on the topic of the lesson, does not know how to use the scientific terminology of the discipline, answers with gross stylistic and logical errors. Performs 0-49% of test tasks.

11. Training resources	
Electronic resources	1. SKMA Repository http://lib.ukma.kz/repository/Республиканская 2. interuniversity electronic library http://rmebrk.kz/ 3. Консультант студента http://www.studmedlib.ru/ 4. Ашық кітапхана https:// kitap.kz/ 5. http://t.me/AkzharkynGaukhar 6. Умный медик YouTube https://goo.gl/zSzoZD 1. https://meduniver.com/Medical/Video/predmet_metodi_istoria_gistologii.html 2. https://meduniver.com/Medical/Video/citologia.html 3. https://meduniver.com/Medical/Video/lekcja_po_citologii.html 4. https://meduniver.com/Medical/Video/lekcja_po_embriologii.html 5. https://meduniver.com/Medical/Video/razvitie_ploda_i_stroenie_placenta.html 6. https://meduniver.com/Medical/Video/gistologia_epitelialnix_tkanei.html 7. https://meduniver.com/Medical/Video/gistologia_rixloi_voloknistoi_tkani.html

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	8. https://meduniver.com/Medical/Video/gistologia_sobstvenno_soeditelnix_tkanei.html 9. https://meduniver.com/Medical/Video/osteogenez_i_xondrogenez.html 10. https://meduniver.com/Medical/Video/gistologia_epitelialnix_i_gelezistix_tkanei.html 11. Веб-сайт ЮКМА: 12. https://ukma.kz 13. Electronic resources 14. Normalnaya fiziologiya [Normal physiology]: textbook / ed. by B. I. Tkachenko. - 3rd ed., ispr. and dop. - Electron.text messages. (53,1 Mb). - Moscow: GEOTAR-Media, 2017. - e-opt.диск 15. Адам физиологиясы. Динамикалық сызбалар атласы [Электронный ресурс] : оқулық / К. В. Судаков [ж.б.] ; қазақ тіл. ауд. М. Қ. Қанқожа. - Electron.text messages. (105Mb). - М. : GEOTAR - Media, 2017. - 464b. p 16. . Kalypty fiziologiya [Kalypty fiziologiya] [Electronic resource]: okulyk / kaz.til. aud. F. A. Mindubaeva ; ed.by K. V. Sudakov. - Electron.text messages. (1,42 Mb). - Moscow: GEOTAR-Media, 2015. - 864 bet. e. opt. disk 17. Kamkin, A. G. Atlas of physiology. In 2 vols. Vol. 1 [Electronic resource]: textbook.manual / A. G. Kamkin, I. S. Kiseleva. - Electron.text messages. (58.4 Mb). Moscow: GEOTAR-Media, 2010. 408 p. e-opt. 18. Diskamkin, A. G. Atlas of Physiology. In 2 vols. Vol. 2 [Electronic resource]: textbook.manual / A. G. Kamkin, I. S. Kiseleva. - Electron.text messages. (58.7 Mb). - Moscow: GEOTAR-Media, 2012. - 448 p. 19. Физиология пәнінен электронды оқу құралы [Электронный ресурс] : медициналық колледждерге арналған оқу құралы / ҚР денсаулық сақтау министрлігі; Техникалық және кәсіптік білім; Медициналық мамандықтарға арналған. - Electron. text messages. (22,3 Мб). - Түркістан : ОҚО, 2012. - эл. опт. Disk 1. Radiation diagnostics of respiratory and mediastinal diseases [Electronic resource]: textbook / E. B. Bekmuratov [et al.]; Ministry of Health and Social Development of the Republic of Kazakhstan.SKSFA. - Electron. text messages. - Shymkent : [B. I.], 2016. - electronic wholesale disk (CD-ROM) (8.91 Mb) 2. Сәулелі диагностика [Электронный ресурс] :оқулық / қазақтіл. ауд. А. Б. Ахметбаева ; ред. басқ. Г. Е. Труфанов. - Electron. text messages. (421Mb). - М. : GEOTAR - Media, 2014. - 576b. p 3. Pathomorphology and radiation diagnostics of some non-inflammatory lung diseases in premature newborns Serikbay M. K., 2020 /https://aknurpress.kz/login 1. Differential diagnosis and treatment of tuberculosis in adults and children.Bekembayeva G. S., Zhandarkulov A. A., 2018 /https://aknurpress.kz/login 5. Diagnosis and treatment of respiratory diseases. Imangazinova S. S., 2016 /https://aknurpress.kz/login 6. Radiation therapy: Textbook. / Edited by G. E. Trufanov, 3rd ed., reprint. Moscow: GEOTAR-Media Publ., 2018, 484 p. http://rmebrk.kz
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physical resources	Skeleton, set of bones, models, torso, electronic tablets, interactive anatomical table "Pirogova", anatomical panel "Pirogova" Microscopes, a set of micro-preparations, and an atlas of microphotographs. Models, Sivtsev table, Forster perimeter, electrocardiograph, tonometer, phonendoscope, Sali hemometer. Biochemical analyzer, spectrophotometers, reagent kit, test tubes Simulators of the Practical Skills Center
Literature	<i>Main Literature:</i> - Gaivoronsky, I. V. Human anatomy. In 2 vols. Vol. 1. System of organs of support and movement. Splanchnology: a textbook-Moscow: GEOTAR-Media, 2014 - Borzyak, E. I. Анатомия Human anatomy. Photographic atlas. In 3 volumes. Volume 1. The musculoskeletal system textbook-Moscow: GEOTAR-Media, 2014. - 480 p - Sinelnikov, R. D. Atlas of Human Anatomy. In 4 vols. Vol. 1. The doctrine of bones, the connection of bones and muscles: textbook. stipend. - 7th ed., reprint. - Moscow: New Wave: Publisher Umerenkov, 2012. <i>Additional information:</i> - Pirogov's anatomy. Atlas of Human Anatomy. In 3 vols. Vol. 2. Head. Boyanovich Yu. V. Anatomiya cheloveka: atlas [Human Anatomy: Atlas]. Rostov n / A: Feniks, 2011 - Sapin, M. R. Normalnaya anatomiya cheloveka: V 2 kn. Kn.1: uchebnik [Normal human anatomy: In 2 books: textbook]. - Sapin M. R., Bilich G. L. Normalnaya anatomiya cheloveka: V 2 kn. Kn. 2: uchebnik [Normal human anatomy: In 2 books]. Moscow: MIA Publ., 2010. - Prives M. G. Anatomiya cheloveka: uchebnik [Human Anatomy: textbook]. And add. - St. Petersburg: Publishing house. SPiMAPO, 2009 main article: - Normalnaya fiziologiya [Normal physiology]: textbook / Edited by L. Z. Tel, N. A. Aghajanyan; Moscow: obraz. and Science of the Russian Federation. Rector of the I. M. Sechenov First Moscow State Medical University, Moscow: "Litterra", 2015, 768 p.: il - Human Physiology: textbook / ed. by E. B. Babsky. Almaty : Evero Publ., 2014, 743 p - Human physiology: textbook / L. Z. Tel [et al.]. - Almaty :Evero, 2012 - Kositsky G. I. Fiziologiya 1-2-3 vol.- Evero, 2014. - Нұрмұхамбетұлы, Ә. Орысша- қазақша медициналық (физиологиялық) сөздік = Русско-казахский медицинский - Алматы : Эверо, 2014. - Физиология человека: учебник / Л. З. Тель [и др.]. - Рек. Rep. by the Center for Innovative Technologies of Medical Education and Science of the Ministry of Health of the Republic of Kazakhstan. Almaty : Evero Publ., 2012, 600 p. Additional information:

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12.	Discipline policy
Requirements for students: - do not be late for classes; - do not skip classes without good reasons; - have anatomical gloves, tweezers and scalpel; - be active during practical classes; - be able to work in a team; - perform and pass SRO on time, on schedule; - do not engage in extraneous activities during classes; - be tolerant, open and friendly to fellow students and teachers* - comply with ethical standards of behavior when working with anatomical preparations and organs of the human body; - take care of the property of the department; - work out missed classes in a timely manner for good reasons; - observe safety precautions in the classroom. - During lectures / practice sessions/Students are not allowed to: - use mobile devices / gadgets; - leave the classroom/classroom (leave the workplace at the clinical / industrial base) without the teacher's permission. Requirements for the dress code The student must: - have a clean, ironed medical gown, cap/cap; - have a neat hairstyle, short-cropped nails; (for girls: bright makeup and bright nail polish are not allowed). Penalties: - In case of a single violation of the module policy, the student receives an oral warning from the teacher. - In case of repeated violations of the module policy, the student provides an explanatory note addressed to the head of the department. - In case of systematic violation of the discipline policy, the head of the department submits an appropriate report to the dean's office. - A student who failed to show up for a border control without a valid reason and received an unsatisfactory grade for one of the types of controls (RC1, RC2, TKsr) is not allowed to take the exam in the discipline; A student who did not show up for a border control for a valid reason, immediately after starting classes, with the permission of the dean's office, receives a work sheet. - For 1 pass of lectures, for a disrespectful reason, the staff score is 1.0 points and is taken away from the border control assessments. - For 1 pass of the SROP, for no valid reason, the penalty point is 2.0 points and is deducted from the SRO ratings - Incentive points are taken into account according to the department's policy. Reward points are added to the assessment of the border control. For active participation in the work of the SNC and seminars in each discipline, the student is awarded an incentive point from 5 to 10. If students do not reach 50% of the current rating (i.e. 30 points), they are not allowed to take the final control (exam). Pre-announced requirements for students, attendance, behavior, grading policies, penalties, incentive measures, etc. The student must:	

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- comply with medical ethics and deontology;
- don't smoke at the academy.
- keep the department clean;
- do not spoil the furniture in classrooms.
- treat textbooks with care;
- observe the appearance of a medical school student;
- observe safety regulations;
- wear masks during a flu epidemic;
- don't skip classes without a valid reason.
- work out classes that are missed for a valid reason in a timely manner, but only if the dean's office has access and at the time specified by the teacher;
- don't be late for classes.
- have the necessary documentation in the classroom: syllabus, guidelines for classes, lectures, notebook and textbook;
- prepare for classes in good faith;
- be active during classes.
- do not engage in extraneous activities during classes: do not talk, do not smoke, do not chew chewing gum, do not eat, do not use the phone, do not listen to music, do not read newspapers and magazines, do not prepare for classes in another discipline.

observe silence and order during breaks.

perform and submit SROs in a timely manner on schedule (in electronic form); with verification of written works for plagiarism.

Penalties for non-fulfillment of work sections:

- if you miss lectures without a valid reason, the assessment of the border control decreases – 1 point for each missed lecture;
- if you skip the SROP without a valid reason, the score for the SRO decreases – 2 points for each missed lesson.
- in case of late delivery of the SRO without a valid reason (later than the specified week) SRO is not accepted.
- in case of a single violation of the discipline policy, a warning is issued to the student;
- in case of systematic violation of the discipline policy, information about the student's behavior is transmitted to the dean's office of the faculty;

Criteria for non-admission to the final control

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

13.	Academic policy based on the moral and ethical values of the Academy
	www.ukma.kz SCMA.ukma.kz Regulations and Rules. Academic policy.
	Item 4 Student's Code of Honor
	Item10. Organization of the educational process
	.12. Grading policy
	Final control -students who have fully mastered the discipline program and scored an admission rating are allowed to take the exam.
	The final score is calculated automatically based on the average score of the current control, the average score of border controls, and the final control score:
	Admission rating (60%) = average score of border controls (20%) + average score of current controls (40%)
	Average score of border controls = PK1 + PK2 / 2
	Average score of current control = arithmetic mean sum of current scores, taking into account the average score for SRO and penalty points.
	Final score (100%) = RKsr x 0.2 + TKsr x 0.4 + IR x 0.4
	Final score (100%)= Admission rating (60%) + Final control (40%)

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Example of calculating a student's final grade:

Penalty points:

For example, a student skipped 2 lectures = $1.0 \times 2 = 2.0$ points

For skipping 1 SROP = 2.0 points

RC 1-80 points

RC 2 – 90 points

$RK_{sr} = (80-2)+90 = 84$ points

2

Arithmetic mean of the current control (prak. and lab. classes) - 80 points

SRO

1-75 points SRO 2-85 points

SRON... – number of SROs

Average score for SRO = $\frac{75 + 85 + N...}{2} = 80$ points

+ N...

Average current score including SRO and penalty points:

$TK_{sr}^* = \frac{TK_{sr} + SRO_{sr}}{2} - C_{sr} = \frac{80 + (80 - 2.0)}{2} = \frac{158}{2} = 79.0$

2 2 2

Admission Rating (60%) = $RK_{sr} \times 0.2 + TK_{sr} \times 0.4 = 84 \times 0.2 + 79.0 \times 0.4 = 16.8 + 31.6 = 48.4$

Final control (40%), for example, the student answered 45 questions correctly out of 50 (90%),
 $90 \times 0.4 = 36$ points

Final score (100%) =

1) $RD (60\%) + IR (40\%) = 48.4 + 36 = 84.4$ points

2) $RK_{sr} \times 0.2 + TK_{sr} \times 0.4 + IR \times 0.4 = 84.0 \times 0.2 + 79.0 \times 0.4 + 90 \times 0.4 = 16.8 + 31.6 + 36 = 84.4$

RK_{sr} - average assessment of border controls

TK_{sr} - average assessment of current control

IR - assessment of final control

RC 1 - border control 1

RC 2 – border control 2

RD -

TK_{sr} admission rating* - average current score with SRO and starf points

Klek-pass rate of the 1st lecture

of the C_{sro} – pass rate of the 1st SROP

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