Syllabus

Work study program of the discipline "Cardiovascular system in normal"

Name and code of the educational program: 6B10115 "Medicine"

1.	**General information about the discipline**		
1.1	**Discipline code:CSN 2211**	1.6	**Учебный год:** 2025-2026
1.2	**The name of the discipline:** cardiovascular system in normal.	1.7	**Курс:** 2
1.3	**Prerequisites:** Introduction to the profession, Structural organization of human physiological processes	1.8	**Семестр**: 3
1.4	**Postrequisites:** general pathology, cardiorespiratory system in pathology	1.9	**Number of credits (ECTS)**: 4/120
	Cycle: BD	1.10	**Component:** UC

2.	**Description of the discipline**
Integrated discipline: building fundamental knowledge of the anatomical, physiological and histological features of the cardiovascular system, applying this knowledge to biomedical and clinical sciences, providing patient-centered care, respecting the principles of ethics and deontology for effective professional practice in health care.	

3.	**The form of summative assessment**		
3.1	● Testing	3.5	Course work
3.2	Written	3.6	Essay
3.3	Verbal	3.7	Project
3.4	Assessment of practical skills	3.8	Other (specify)

4.	**Objectives of the discipline**
To form students' deep and comprehensive knowledge and understanding of the anatomy, histology, and physiology of the cardiovascular system in a healthy body. This allows them to fully interact with patients in the future, as well as successfully integrate the acquired knowledge into clinical practice and visual diagnostics.	

5.	**Final learning outcomes (LO disciplines)**	
LO1	Demonstrates knowledge of the subject and tasks of anatomy, histology and physiology, their importance for medicine.	
LO 2	Knows and understands the structural features of the heart, blood vessels and other elements of the cardiovascular system. It is able to describe the topography of organs, the microscopic structure of tissues and cells of the heart and blood vessels.	
LO3	Understands the basic physiological processes in the heart, regulation of cardiac activity. It is able to explain the mechanism of the large and small circulatory circles.	
LO4	He is able to apply the essence of research methods for various human structures and functions, widely used in practical medicine.	
LO5	He is able to analyze and communicate information obtained in the course of practical skills, determines its significance for characterizing the state of the body. He transfers his own knowledge and skills to students when conducting educational practices or explaining theoretical material.;	
5.1	**LO discipline**	**Learning outcomes of the EP, which are LO disciplines**
	LO 1 LO 2	LO1 – Applies fundamental knowledge of biomedical, clinical, epidemiological, and social-behavioral sciences to practice.

	LO 3 LO 4	LO2– Provides patient-centered care in biomedical, clinical, epidemiological sciences aimed at diagnosis, treatment and prevention of the most common diseases.
	LO 5	LO4 - Communicates effectively with patients, their families and health care providers in an ethical, deontological and inclusive manner, resulting in effective information sharing and collaboration.

6. Detailed information about the discipline

6.1 The venue of the Department of Morphophysiology (Anatomy) is Shymkent, Al–Farabi Square 1, main academic building, ground floor; e-mail anatomia.2012@mail.ru. Email address:www.ukma.kz. (Physiology)– Al-Farabi Square, academic building No. 2, 4th-5th floor
Location of the Department of Topographic anatomy and histology: Shymkent, Al-Farabi Square 1, academic building 1B, ground floor;

6.2

Number of hours	Lectures	Practical.less	Lab. less	SIWT/MK	SIW
	8	32		12/12	56

6.3 The plan of studying the discipline

		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	credit	watch
Anatomy	Lect	1			1			1	1			2,0	4
	Pract	2	2	2	2			2	2	2	2		16
	SIWT		1	1		1		1		1	1		6
	SIW												34
Physiology	Lect		1			1						1,0	2
	Pract		2		2					2	2		8
	SIWT	1				1МК-1			1				3
	SIW												17
Histology	Lect			1			1					1,0	2
	Pract	2		2			2		2				8
	SIWT				1		1				1МК-2		3
	SIW												17
	Lect	1	1	1	1	1	1	1	1	-	-		8
	Pract	4	4	4	4	-	2	2	4	4	4		32
	SIWT	1	1	1	1	2	1	1	1	1	2		12
	SIW	5	6	6	6	5	6	6	6	5	5		**56**

7. Information about teachers

№	Full name	Degrees and positions	Email address
1.	Танабаев Баймахан Дильбарханович	зав.кафедрой, к.м.н, и.о.профессора	b.tanabayev@mail.ru
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5.	Тоймбетова Карлыгаш Абибуллаевна	ст.преподаватель	tojmbetova71@mail.ru
6.	Едіге Айдана Жандосқызы	магистр, ст преподаватель	a.edige93@mail.ru
7.	Сартаева Улжалгас Спандияровна	магистр, ст преподаватель	sartaeva.ulzhalgas@mail.ru
8.	Турекулова Акжаркын Кенесовна	магистр, ст преподаватель	jarkin-74@mail.ru
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12.	Сабит Акайлым Ерлановна	магистр, ст преподаватель	sae.260996@mail.ru

8. Thematic plan

Week/ day	Topic name	Summary	The LO of discipline	Number of hours	Teaching methods/ technologies	Assessment forms/ methods
1	**Anatomy.** **Lecture 1.** General anatomy of the cardiovascular system. Circulatory circles	The structure of the heart. Chambers of the heart. The structure of the walls of the heart. The topography of the heart. The aorta and its branches. Pulmonary trunk, branches.	LO1	1	Introductory	Feedback (security questions)
	Anatomy. **Practical lesson 1.** The cardiovascular system. Heart. Circulatory circles.	The heart, the structure, the topography of the conducting system of the heart. The pericardium. The mediastinum. Aorta, its parts: structure, topography. Coronary arteries. Branches of the aortic arch. Branches of the thoracic part of the aorta. Age-related features.	LO1, LO2, LO3	2	work in small groups with anatomical preparations, torso, dummies, posters, on the interactive Pirogov panel and/or solving test and situational tasks	oral survey, assessment sheet for solving situational tasks, assessment sheet for completing test tasks
	Histology. Practical lesson No. 1 Subject: The heart.	Heart. The structure of the heart wall, its membranes, and their tissue composition. Vessels of the heart. Innervation of the heart. The endocardium and its derivatives are heart valves. The myocardium, its typical and atypical muscle tissue, importance in the work of the heart, its morphofunctional characteristics. Epicardium and parietal leaf of the pericardium.	LO1, LO2, LO3	2	Small group work, checklist of histopreparations, micrographs	Practical lesson evaluation checklist.
	Physiology. SIWT / SIW 1. 1.Functions of the valvular heart apparatus.	The structure and functions of the valvular heart apparatus.	LO4, LO5	1	Preparation and protection of presentations.	A checklist for evaluating SIW

	2. Electrical activity of the myocardium.Methods of studying the activity of the heart. ECG. SRO Assignment: To master the mechanisms of generation and conduction of excitation in the myocardium, as well as the methods of their registration.	Electrical activity of myocardial cells. Mechanical sound manifestations of cardiac activity. The ECG.				
2	**Physiology.** Lecture 1. Physiology of cardiac activity.	Physiology of the cardiovascular system. Circulatory circles. Regulation of heart activity.	LO1	1	Introductory	Feedback (security questions)
	Physiology. Practical lesson 1 Topic:Physiology of the heart. Physiological properties of the heart muscle. The conduction system of the heart. Phases of the cardiac cycle.	Physiology of the heart. Physiological properties of the heart muscle. Heart automation. The conduction system of the heart. The experience of Stannius. Pumping function of the heart. Phases of the cardiac cycle. Systolic and minute volume of blood flow.	LO1, LO2, LO3	2	обсуждение основных вопросов темы, выполнение тестовых заданий, решение ситуационных задач.	Oral interview, assessment of the performance of test tasks, assessment of the solution of situational tasks
	Anatomy. Practical lesson 2. Common, external, and internal carotid arteries: topography, projection, branches, and areas of blood supply.	Common, external, and internal carotid arteries: topography, projection, branches, and areas of blood supply. Blood supply to the brain.	LO1, LO2, LO3	2	work in small groups with anatomical preparations, torso, dummies, posters, on the interactive Pirogov panel and/or solving test and situational tasks	oral survey, assessment sheet for solving situational tasks, assessment sheet for completing test tasks
	Anatomy. SIWT / SIW **1** Features of the structure of the heart in the fetus and newborn. Fetal blood circulation. SIW Assignments: 1. Name the main morphological features of the heart in the fetus and newborn. 2. Explain the role of the foramen ovale and ductus arteriosus in fetal blood circulation.	Features of the structure of the heart in the fetus and newborn. Fetal blood circulation.	LO4, LO5	1/5	- Preparation and protection of the presentation;	Oral interview. Assessment sheets for all forms of completed assignments.

	3. Compare the stages of transition from intrauterine to extrauterine blood circulation with changes in the structure of the newborn's heart.					
3	**Histology.** Lecture No. 1. Topic: Histology of the heart.	Understanding the development and histophysiology of the heart. The tissue composition of the membranes of the heart. The structure of the heart valves. Atypical muscle cells.	LO1	1	overview	Feedback (security questions)
	Histology. Practical lesson #2.Topic: The arteries.	Classification of 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 the arteries.	LO1, LO2, LO3	2	Small group work, checklist of histopreparations, micrographs	Practical lesson evaluation checklist.
	Anatomy. Practical lesson 3. Subclavian, axillary, brachial, radial, ulnar arteries, arches and arteries of the hand: topography, branches, and areas of blood supply.	Subclavian, axillary, and brachial arteries: topography, branches, and areas of blood supply. Radial, ulnar, arteries, arches, and arteries of the hand: topography, branches, and areas of blood supply.	LO1, LO2, LO3	2	work in small groups with anatomical preparations, torso, dummies, posters, on the interactive Pirogov panel and/or solving test and situational tasks	oral survey, assessment sheet for solving situational tasks, assessment sheet for completing test tasks
	Anatomy. SIWT / SIW 2. Malformations of the heart.	Malformations of the heart.	LO4 LO5	1/5	- Preparation and protection of the presentation;	Устный опрос. Оценочные листы по всем формам выполненного задания.
4	SIW Assignments: 1. List the main congenital malformations of the heart and their anatomical characteristics.	Branches of the ascending aorta and aortic arch, parietal and visceral branches of the thoracic and abdominal parts of the aorta.	LO1	1	Overview	Feedback (security questions)
	Anatomy. Practical lesson 4.	Abdominal part of the aorta:	LO1,	2	work in small	oral survey,

	The abdominal part of the aorta: topography, branches, areas of blood supply.	topography, paired and unpaired visceral and parietal branches, areas of blood supply.	LO2, LO3		groups with anatomical preparations, torso, dummies, posters, on the interactive Pirogov panel and/or solving test and situational tasks	assessment sheet for solving situational tasks, assessment sheet for completing test tasks
	Physiology. Practical lesson 2 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.	LO1, LO2, LO3	2	discussing the main issues of the topic, completing test tasks, solving situational problems.	Oral interview, assessment of the performance of test tasks, assessment of the solution of situational tasks
	Histology. SIWT 1. Morphofunctional features of the cardiac conduction system Task SIW 1. Compare the morphology of the cells of the conduction system with ordinary cardiomyocytes.	Sources of development of the cardiac conduction system. The structure and functional significance of the cardiac conduction system.	LO4, LO5	1	Working in small groups, defending a presentation, compiling a glossary.	Checklist for SIW assessment
5	**Physiology.** Lecture 2 Laws of hemodynamics. Methods of CVS research.	Законы гемодинамики. Методы исследования ссс. Регуляция движения крови по сосудам.	LO1	1	overview	Feedback (security questions)
	Anatomy. SIWT / SIW 3. The boundaries of the heart. Projection and listening points of the heart valves. SIW Assignments: 1. Name the anatomical boundaries of the heart and indicate them on the anterior chest wall. 2. Explain the relationship between the anatomical location of the heart valves and their auscultation points.	Boundaries of the heart (relative and absolute dullness of the heart). Projection of the heart valves onto the anterior chest wall. The listening points of the heart valves.	LO4 LO5	1/5	- Preparation and protection of the presentation	Oral interview. Assessment sheets for all forms of completed assignments.
	Physiology . Border control 1.	Consolidation of the completed material on the topics of the lecture, practical training, SIWT	LO1 LO4 LO5	2	Written response to tickets (situational tasks)	MK assessment Checklist

		and SIW				
6	**Histology.** Lecture No.2. Topic: Histology of blood and lymphatic vessels.	An idea of the development and histophysiology of arteries, veins, vessels of the microcirculatory bed, lymphatic vessels, age-related features.	LO1	1	overview	Feedback (security questions)
	Histology. Practical lesson #3.The theme: Vessels of the microcirculatory bed.	Vessels of the microcirculatory bed. Arterioles, their role in blood circulation. Building. Hemocapillaries. Classification, function and structure. Organ features of capillaries. Venules. Functional significance and structure.	LO1, LO2, LO3	2	Small group work, checklist of histopreparations, micrographs	Practical lesson evaluation checklist.
	Histology. SIWT 2. Arteriovenular anastomoses. Task SIW 2. Explain the mechanism of regulation of the AVA lumen.	Arteriovenular anastomoses. Importance for blood circulation. Classification. The structure of arteriovenular anastomoses of various types.	LO4, LO5	1	Working in small groups, defending a presentation, compiling a glossary.	Checklist for SIW assessment
7	**Anatomy.** Lecture 3. Superior and inferior vena cava, portal vein: formation, tributaries, topography.	Superior and inferior vena cava, portal vein: formation, tributaries, topography.	LO1	1	Overview	Feedback (security questions)
	Anatomy. Practical lesson 5. Common iliac artery, internal iliac artery: topography, branches, areas of blood supply.	The common iliac artery. Internal iliac artery: branches, areas of blood supply. The external iliac artery. Femoral, popliteal, anterior and posterior tibial arteries, foot arteries: topography, branches, areas of blood supply.	LO1, LO2, LO3	2	work in small groups with anatomical preparations, torso, dummies, 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
	Anatomy. SIWT / SIW 4. Blood supply to the heart. SIW Assignments: 1. Name the coronary arteries and their main branches involved in the blood supply to various parts of the heart. 2. In the schematic drawing of	Blood supply to the heart: coronary arteries and venous drainage.	LO4 LO5	1/5	- Preparation and protection of the presentation; -execution of the arterial flow pattern	Oral interview. Assessment sheets for all forms of completed assignments.

	the heart, identify the arteries and their vascularization zones, comparing them with the clinical risks of their occlusion.					
8	**Anatomy.** Lecture 4 Venous anastomoses.	Kava-caval and portocaval anastomoses.	LO1	1	Overview	Feedback (security questions)
	Anatomy Practical lesson 6. Superior vena cava: formation, tributaries, topography	Superior vena cava: formation, tributaries, topography. Jugular veins. Subclavian vein. Unpaired and semi-paired veins	LO1, LO2, LO3	2	work in small groups with anatomical preparations, torso, dummies, 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 #4.Topic: Veins. Lymphatic vessels	Veins. The structure of the vein wall in connection with hemodynamic conditions. Features of the structure of veins of various types. The structure of venous valves. Lymphatic vessels. Structure and classification. The structure of lymphatic capillaries and various types of lymphatic vessels.	LO1, LO2, LO3	2	Small group work, checklist of histopreparations, micrographs	Practical lesson evaluation checklist.
	Physiology. SIWT / SIW 3 Factors that ensure the movement of blood in blood vessels.The volume velocity of blood flow. SIW Assignments: Draw a blood circulation diagram showing pressure gradients.	Arterial blood pressure. Arterial pulse. Blood circulation time. Systolic and minute blood volume. Methods for determining systolic and minute blood volume.	LO4 LO5	1	Preparation and protection of presentations.	A checklist for evaluating SIW
9	**Anatomy.** Practical lesson 7. Inferior vena cava: formation, tributaries, topography.	Inferior vena cava: formation, tributaries, topography. Veins of the lower extremity.	LO1, LO2, LO3	2	work in small groups with anatomical preparations, torso, dummies, posters, on the	oral survey, assessment sheet for solving situational tasks,

					interactive panel "Pirogov" and/or solving test and situational tasks	assessment sheet for completing test tasks
	Physiology. Practical lesson .3 Regulation of cardiac activity.	Regulation of heart activity. Intracardiac regulatory mechanisms. Extracardial regulatory mechanisms. Humoral regulation of heart activity.	LO1, LO2, LO3	2	discussing the main issues of the topic, completing test tasks, solving situational problems.	Oral interview, assessment of the performance of test tasks, assessment of the solution of situational tasks
	Anatomy. SIWT / SIW 5. Facial veins and their connection with the sinuses of the dura mater (clinical significance). SIW Assignments: 1. Name the main veins of the face and indicate the ways they are connected to the venous sinuses of the dura mater. 2. Explain the mechanism of retrograde spread of infection from the face to the cranial cavity through venous anastomoses. 3 Analyze a clinical case: a patient with a nasolabial triangle boil — justify the possible risk of intracranial complications, referring to the anatomical features of venous drainage.	Facial veins. Sinuses of the dura mater.	LO4 LO5	1/4	- Preparation and protection of the presentation; -execution of the scheme of the veins and areas of venous outflow.	Oral interview. Assessment sheets for all forms of completed assignments.
10	**Anatomy.** Practical lesson 8. Portal vein: formation, topography, tributaries.	Portal vein: formation, topography, tributaries.	LO1, LO2, LO3	2	work in small groups with anatomical preparations, torso, dummies, 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. Practical lesson .4 The basic laws of hemodynamics. The movement of blood through the vessels.	The basic laws of hemodynamics. The movement of blood through the vessels. Vasomotor center. Reflex and humoral regulation of blood vessels	LO1, LO2, LO3	2	discussing the main issues of the topic, completing test tasks, solving situational problems.	Oral interview, assessment of the performance of test tasks, assessment of the solution of situational tasks
	Anatomy. SIWT / SIW 6. Cava-caval and portocaval anastomoses. SIW Assignments: 1. List the main areas of the cava-caval and porto-caval anastomoses and indicate the participating veins. 2. Explain the functional significance of portocaval anastomoses in portal hypertension. 3. Analyze the clinical case of portal hypertension and indicate through which venous anastomoses collateral blood outflow can be carried out.	Kava-caval and portocaval anastomoses.	LO4 LO5	1/4	- Preparation and protection of the presentation; -execution of the scheme of the veins and areas of venous outflow.	Oral interview. Assessment sheets for all forms of completed assignments.
	Histology Border control 2.	Consolidation of the completed material on the topics of lectures, practical exercises, exercises and deadlines. , SIWT / SIW	LO4 LO5	1	Written response to tickets (situational tasks)	RK assessment Checklist
Interim assessment hours			12 hours			

9.	Teaching and assessment methods	
9.1	Lectures	Introductory, review, feedback (security questions)
9.2	Practical exercises	Work in small groups with anatomical preparations, torso, dummies, posters, on the Pirogov interactive panel and/or solving test and situational tasks. Discussing the main issues of the topic, completing test tasks, solving situational tasks. Small group work, checklist of histopreparations, micrographs.
9.3	SIWT / SIW	Preparation and protection of the presentation; Execution of the scheme of the veins and areas of venous outflow. Working in small groups, compiling a glossary.
9.4	Midtern control	Written response to tickets (situational tasks)

10. Evaluation criteria

10.1 Criteria for evaluating the learning outcomes of the discipline

№ LO	Name of learning outcomes	Unsatisfactory	Satisfactory	Well	Great
LO1	Demonstrates knowledge of the subject and tasks of anatomy, histology and physiology, their importance for medicine.	He cannot explain the tasks of the discipline and their significance for medicine.	Knows the tasks of the disciplines, but explains them incompletely and with errors	Confidently names tasks, shows a general understandin g of the importance	Clearly and argumentatively explains the subject, tasks and their importance for medicine.
LO2	Knows and understands the structural features of the heart, blood vessels and other elements of the cardiovascular system. It is able to describe the topography of organs, the microscopic structure of tissues.	It does not recognize anatomical and histological structures.	Recognizes with difficulty, makes inaccuracies in the description	Recognizes structures, describes them with minor errors	Confidently identifies structures and accurately describes their features
LO3	Understands the basic physiological processes in the heart, regulation of cardiac activity. It is able to explain the mechanism of the large and small circulatory system.	It cannot explain the physiological processes and regulation	Explains it with errors or superficially	Provides a detailed but incomplete explanation of the processes	Confidently and fully explains the physiology and mechanisms of blood circulation
LO4	He is able to apply the essence of research methods for various human structures and functions, widely used in practical medicine.	Does not know the methods, cannot explain their principle	He knows the methods, but he can't put them into practice.	Confidently uses methods, but needs to be adjusted	Independently applies methods, explains their meaning
LO5	He is able to analyze and communicate information obtained in the	Does not analyze or understand the meaning of the information	Partially analyzes, but makes mistakes in interpretation	Analyzes information, explains its relation to the state of	Deeply analyzes, reasonably interprets clinical

		course of practical skills, determines its significance for characterizing the state of the body.	received		the body	significance

10.2 Assessment methods and criteria

Checklist for practical training

Oral response

Form of control	Evaluation	Evaluation criteria
Oral response	Great Corresponds to the estimates: A (4,0; 95-100%); A- (3,67; 90-94%)	The student did not make any mistakes during the answer, was guided by the theories, concepts and directions of the discipline under study, gave them a critical assessment, and also used the scientific achievements of other disciplines.
	Well Corresponds 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, managed to systematize the program material with the help of a teacher.
	Satisfactory Corresponds to the 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 indicated by the teacher, and had great difficulty in systematizing the material.
	Unsatisfactory FX (0.5; 25-49%) F (0; 0-24%)	The student made gross mistakes during the answer, did not study the main literature on the topic of the lesson, and failed to use scientific terminology in histology and physiology.

Checklist for evaluating work in small groups

Evaluation criteria for the description of anatomical preparations

Full name of the student _____

№ steps	Criteria for evaluating steps	Great 90-100 He gave a clear and comprehensive answer, correctly named the organs in Latin and Greek.	Well 70-89 I gave a fairly complete answer, but I was confused in terminology; I made minor inaccuracies	Udovl 50-69 I partially completed the task: I was confused in the answer, I did not provide the full names of anatomical structures.	Failure 0-49 I couldn't complete the task: I couldn't name the anatomical structures
1.	The student recognizes the organ, gives its name in Latin, and, 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's 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 _____

Checklist for evaluating work in small groups

Working in small groups	**Great** Corresponds to the estimates**:** A (4,0; 95-100%); A- (3,67; 90-94%)	The students, allocated to a small group, actively participated in th fully correctly answered questions during the discussion.
	Well **Corresponds to the estimates:** B+ (3,33; 85-89%) B (3,0; 80-84%) B- (2,67; 75-79%) C+ (2,33; 70-74%)	The students assigned to the subgroup actively participated in the d problem by making mistakes that were corrected by the students of
	Satisfactory **Corresponds to the estimates:** C (2,0; 65-69%) C- (1,67; 60-64%) D+ (1,33; 55-59%) D- (1,0; 50-54%)	The students assigned to the subgroup actively participated in the d problem by making mistakes that were corrected by the students of discussion of the main issues of the topic, during the discussion the the subgroup themselves
	Unsatisfactory FX (0.5; 25-49%) F (0; 0-24%)	They could not find the correct answers to the main questions of th use scientific terminology when answering.

Solving situational problems

Form of control	Evaluation	Evaluation criteria
Solving situational problems	Great Corresponds to the estimates: 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 to the estimates: B+ (3,33; 85-89%) B (3,0; 80-84%) B- (2,67; 75-79%) C+ (2,33; 70-74%)	He actively participated in the work, showed knowledge of the material, made unprincipled inaccuracies or errors corrected by the student himself.

	Satisfactory Corresponds to the 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 difficulty organizing the material.
	Unsatisfactory FX (0.5; 25-49%) F (0; 0-24%)	He did not participate in the group's work, answering the teacher's questions, made fundamental mistakes and inaccuracies, and did not use scientific terminology in his answers.

Criteria for assessing practical skills acquisition
Full name of the student _____

№ п/п	Criteria for evaluating steps	Level			
		Great 90-100	Well 70-89	Satisfactory 50-69	Failed 0-49
1.	The 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 must 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 must 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 tell about the age characteristics of the organ.	18-20	14-17,8	10-13,8	0-9,8

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

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

№ п/п	**Criteria for evaluating steps**	Level			
		Great 90-100	Great 90-100	Great 90-100	Great 90-100
1.	The student must correctly find and draw a diagram of the arteries	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 student must correctly indicate the topography and projection of the arteries.	18-20	14-17,8	10-13,8	0-9,8
4.	I have to list all the 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

Criteria for evaluating the implementation of the scheme (vein formation)

№ п/п	Criteria for evaluating steps	Level			
		Great 90-100	Great 90-100	Great 90-100	Great 90-100
1.	The student must correctly draw a diagram of the formation of veins.	18-20	14-17,8	10-13,8	0-9,8
2.	The student must give the full name of the veins in Latin.	18-20	14-17,8	10-13,8	0-9,8
3	The student must correctly indicate the topography of the veins.	18-20	14-17,8	10-13,8	0-9,8
4.	Must indicate all the tributaries of the veins.	18-20	14-17,8	10-13,8	0-9,8
5.	The student should indicate the areas drained by this vein.	18-20	14-17,8	10-13,8	0-9,8

Presentation protection

Form of control	Evaluation	Evaluation criteria
Presentation protection	Great Corresponds to the points: A (4.0; 95-100%) A- (3,67; 90-94%)	The student prepared a presentation on the topic at the appointed time, independently, accurately, with at least 20 concise and informative slides, using at least 5 literary sources and having a detailed plan, provided diagrams, tables and drawings corresponding to the topic, demonstrated deep knowledge of the topic during the defense and accurately answered all the questions asked.
	Well Corresponds to the points: 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 on the topic at the appointed time, independently, accurately, with at least 20 concise and informative slides, using at least 5 literary sources and having a detailed plan, provided diagrams, tables and drawings corresponding to the topic, demonstrated good knowledge of the topic during the defense, made non-fundamental mistakes when answering questions.
	Satisfactory Corresponds to points: C (2.0; 65-69%) C- (1,67; 60-64%) D+ (1,0; 50-54%)	The student prepared a presentation on the topic at the appointed time, independently, but carelessly, with a volume of at least 20 non-informative slides, using less than 5 literary sources and the presence of an undeveloped plan, cited an insufficient number of diagrams, tables and drawings corresponding to the topic, answered questions uncertainly during the defense, made fundamental mistakes
	Unsatisfactory Corresponds to FX score (0.5; 25-49%) F (0; 0-24 %)	The student did not prepare a presentation on the topic at the appointed time, or prepared it at the appointed time, but not thoroughly, carelessly, with less than 20 non-informative slides, without specifying literary sources, in

		the absence of a plan, made gross mistakes when answering questions or could not answer questions and did not defend the presentation on the topic.

Checklist for evaluation of SIW in histology

№	Evaluation criteria	Level			
		Great	**Well**	**Satisfied**	**Failure**
1	Assessment of the protection of histological micro-preparations	40	28	20	0
2	Evaluation of the protection of electronic micrographs	40	28	20	0
3	Assessment of glossary compilation	20	14	10	0
	Total:	100	70	50	0

Preparation and protection of histological micro-preparations and micrographs

Form of control	Evaluation	Evaluation criteria
Preparation of the presentation of histological micro-preparations and micrographs and its protection.	**Great** Corresponds to the estimates: A (4,0; 95-100%); A- (3,67; 90-94%)	The student prepared a presentation of 3 micro-preparations and 3 micrographs on the topic at the appointed time, independently, accurately, with at least 6 meaningful tables, using at least 5 literary sources and having a detailed plan, provided diagrams, tables and drawings corresponding to the topic, demonstrated deep knowledge of the topic during the defense and answered all correctly the questions asked.
	Well Corresponds 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 prepared a presentation of 3 micro-preparations and 3 micrographs on the topic at the appointed time, independently, accurately, with at least 6 meaningful tables, using at least 5 literary sources and having a detailed plan, provided diagrams, tables and drawings corresponding to the topic, demonstrated good knowledge of the topic during the defense, when answering questions I did not make fundamental mistakes.
	Satisfactory Corresponds to the 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 micrographs on the topic at the appointed time, independently, but inaccurately, with at least 6 meaningful tables, using less than 5 literary sources and the presence of an undeveloped plan, cited an insufficient number of diagrams, tables and drawings corresponding to the topic, answered questions uncertainly during the defense, made fundamental mistakes.

	Unsatisfactory Corresponds to the assessment FX (0,5; 25-49%); F (0; 0-49%)	The student did not prepare a presentation of 3 micro-preparations and 3 micrographs on the topic at the appointed time, or prepared it at the appointed time, but not thoroughly, carelessly, with less than 6 meaningful tables, without specifying 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 work.

Check-list of midtern control

Form of control	Evaluation	Evaluation criteria
Written ticket survey (clinical tasks) and testing	Great Corresponds to the points: A (4.0; 95-100%) A- (3,67; 90-94%)	It is put in the event that the student did not make any mistakes or inaccuracies during the answer. He is guided by theories, concepts and directions in the studied discipline and gives them a critical assessment. 90-100% completion of test tasks.
	Well Corresponds to the points: 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 gross mistakes during the answer, made unprincipled inaccuracies or fundamental errors corrected by the student himself, managed to systematize the program material with the help of the teacher. Performs test tasks by 70-89%.
	Satisfactory Corresponds to 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, limited himself only to the educational literature indicated by the teacher, experienced great difficulties in systematizing the material. Performs test tasks by 50-69%.
	Unsatisfactory Corresponds to FX score (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 out 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 test tasks by 0-49%.

Multidisciplinary knowledge assessment system

Rating according to the letter system	The digital equivalent of points	Percentage content	Assessment according to the traditional system
A	4,0	95-100	Great
A -	3,67	90-94	
B +	3,33	85-89	Well
B	3,0	80-84	
B -	2,67	75-79	
C +	2,33	70-74	

C	2,0	65-69	Satisfactory
C -	1,67	60-64	
D+	1,33	55-59	
D-	1,0	50-54	
FX	0,5	25-49	Unsatisfactory
F	0	0-24	

11.	**Educational resources**
Electronic resources, including, but not limited to: databases, animation simulators, professional blogs, websites, other electronic reference materials (for example: video, audio, digests)	• Электронная библиотека ЮКМА - https://e-lib.skma.edu.kz/genres • Республиканская межвузовская электронная библиотека (РМЭБ) – http://rmebrk.kz/ • Цифровая библиотека «Aknurpress» - https://www.aknurpress.kz/ • Электронная библиотека «Эпиграф» - http://www.elib.kz/ • Эпиграф - портал мультимедийных учебников https://mbook.kz/ru/index/ • **ЭБС IPR SMART** https://www.iprbookshop.ru/auth • информационно-правовая система «Заң» - https://zan.kz/ru • Medline Ultimate EBSCO - https://research.ebsco.com/ • eBook Medical Collection EBSCO - https://research.ebsco.com/ • Scopus - https://www.scopus.com/
Electronic textbooks	Билич Г. Л. Анатомия человека. Атлас. В 3 т. Т.1. Опорно-двигательный аппарат. Остеология. Синдесмология. Миология [Электронный ресурс] : учебник / Г . Л . Билич, В. А. Крыжановский. - Электрон. текстовые дан. (104 Мб). - М. : ГЭОТАР - Медиа, 2013. - эл. опт. диск Билич Г. Л. Анатомия человека. Атлас. В. 3 т. Т. 3 [Электронный ресурс]: учебник / Г . Л . Билич, В. А. Крыжановский. - Электрон. текстовые дан. (157 Мб). - М.: ГЭОТАР - Медиа, 2013. - 792 с. эл. опт. диск Билич Г. Л. Анатомия человека. Атлас. В 3 т. Т. 2 [Электронный ресурс]: учебник / Г . Л . Билич, В. А. Крыжановский. - Электрон. текстовые дан. (179 Мб). - М. : ГЭОТАР - Медиа, 2013. - 824 с. эл. опт. диск Анатомия человека. В 2 т. Т. 1 [Электронный ресурс] : учебник / под ред М. Р. Сапина. - Электрон. текстовые дан. (674 Мб). - М. : ГЭОТАР - Медиа, 2013. - 528 с. эл. опт. диск Анатомия человека. В 2 т. Т. 2 [Электронный ресурс] : учебник / под ред М. Р. Сапина. - Электрон. текстовые дан. (674 Мб). - М. : ГЭОТАР - Медиа, 2013. - 456 с. эл. опт. диск Анатомия человека = HumanAnatomy : учебное пособие / Е. С. Околокулак, Ф. Г. Гаджиева, С. А. Сидорович, Д. А. Волчкевич. — Минск : Вышэйшая школа, 2021. — 416 с. — ISBN 978-985-06-3304-0. — Текст : электронный // Цифровой образовательный ресурс IPRSMART : [сайт]. — URL: https://www.iprbookshop.ru/119959.html (дата обращения: 13.01.2025). — Режим доступа: для авторизир. пользователей Шандаулов А.Х. Основы общей физиологии https://mbook.kz/ru/index_brief/373/ Нормальная физиология [Электронный ресурс] : учебник / под ред. Б. И. Ткаченко. - 3-е изд., испр. и доп. - Электрон.текстовые дан. (53,1Мб). - М. : ГЭОТАР - Медиа, 2017. - эл. опт.диск Основы общей физиологии: учебник / А.Х. Шандаулов.– Алматы: Эверо,2020.– 240 б.: https://elib.kz/ru/search/read_book/91/ Қасымбеков В. Қ., т.б.Қалыпты физиология бойынша ахуалдық есептер жиынтығы.Оқу-әдістемелік құралы. – Алматы: Эверо, 2020.https://www.elib.kz/ru/search/read_book/2775/ Георгиева С.А.Физиология человека:. –Алматы: Эверо, 2020. ил., 480 с.https://www.elib.kz/ru/search/read_book/2796/ Касымбеков В.К. и др.Ситуационные задачи по курсу нормальной физиологии. Учебно-методическое пособие.– Алматы: Эверо, -2020. – 144 с. https://www.elib.kz/ru/search/read_book/2774/ Барбараш, Н. А. Количественная оценка здоровья на кафедре нормальной физиологии : методические рекомендации для студентов. — Кемерово : Кемеровская государственная

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Laboratory physical resources	Скелет, набор из костей, муляжи, торс, электронные планшеты, интерактивный анатомический стол «Пирогова», анатомическая панель «Пирогова» Микроскопы, набор микропрепаратов, атлас микрофотографий. Муляжи, таблица Сивцева, периметр Форстера, электрокардиограф, тонометр, фонендоскоп, гемометр Сали. Биохимический анализатор, спектрофотометры, набор реактивов, пробирки Тренажеры Центра практических навыков
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12. Discipline Policy

Requirements for students:

1. don't be late for classes;
2. do not skip classes without good reason;
3. have anatomical gloves, tweezers and a scalpel;
4. Be active during practice sessions;
5. be able to work in a team;
6. timely, on schedule, perform and deliver SIW;
7. do not engage in extraneous activities during classes;
8. Be tolerant, open and friendly to fellow students and teachers;
9. observe ethical standards of behavior when working with anatomical preparations and organs of the human body;
10. take care of the property of the department;
11. timely work off missed classes for good reasons;
12. Observe safety precautions in the classroom.
13. During lectures / practical classes/It is forbidden for students to SIWT:
14. Use mobile devices/ gadgets;
15. leave the study room/classroom (leave the workplace at the clinical/industrial base) without the permission of the teache

Dress code requirements

The student is obliged to:

1. have a clean, ironed medical gown, cap/cap;
2. have a neat hairstyle, short-cropped nails; (for girls: bright makeup and bright nail polish are unacceptable).

Penalties:

1. In case of a single violation of the module policy, the student receives an oral warning from the teacher.
2. In case of repeated violations of the module policy, the student provides an explanatory note addressed to the head of the department.

- 3. 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 did not show up for the boundary control without a valid reason and received an unsatisfactory grade for one of the types of controls (MC1, MC2, TCsr) is not allowed to take the exam in the discipline; A student who did not show up for the MC for a good reason, immediately after he started 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 point and is deducted from the estimates of the boundary control.
- For 1 skip of the SIW, for no good reason, the penalty point is 2.0 points and is subtracted from the SIW estimates

• Incentive points are taken into account according to the department's policy. Reward points are added to the assessment of the boundary control. For active participation in the work of the SNK and seminars in each discipline, the student is awarded an incentive score from 5 to 10.Если обучающиеся не набирают 50% текущего рейтинга (i.e. 30 points), then they are not allowed to take the final control (exam).

Requirements for students, attendance, behavior, grading policy, punitive measures, incentive measures, etc.

The student must:

● Observe medical ethics and deontology;
● No smoking at the academy;
● Keep the department clean;
● do not spoil furniture in classrooms;
● take care of textbooks;
● observe the appearance of a medical student;
● Follow safety regulations;
● Wear masks during the flu epidemic;
● do not skip classes without a good reason;
● to work out classes missed for a good reason in a timely manner, but only if the dean's office has access and at a time determined 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 class: 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;
● to perform and submit SIW in a timely manner according to the schedule (in electronic form); with verification of written works for plagiarism.Штрафные меры при невыполнении разделов работы:
● if you skip lectures for no good reason, the assessment of boundary control decreases – 1 point for each missed lecture;
● if you skip the SIW without a valid reason, the score for the SIW decreases – 2 points for each missed lesson;
° in case of late delivery of the DEADLINE without a valid reason (later than the specified week), the DEADLINE is not accepted;
● in case of a single violation of the discipline policy, a warning is given 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 has received an unsatisfactory grade for one of the types of control (boundary control 1, boundary control 2, average grade of the current control) is not allowed to take final control of the discipline.

13.	**Academic policy based on the moral and ethical values of the Academy**
	www.ukma.kz Regulations and Rules of YUMA JSC. Academic policy.
	Paragraph 4 of the student's Code of Honor
	Item 10. Organization of the educational process
	Item 10. Organization of the educational process **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 the boundary controls and the final control score:

Admission rating (60%) = average score of boundary controls (20%) + average score of the current control (40%)

The average score of boundary controls = MC1 + MC2 / 2

The average score of the current control = the arithmetic mean sum of the current scores, taking into account the average score for SIW and penalty points.

Final score (100%) = MCaver x 0.2 + CCaver x 0.4 + FC x 0.4

Final score (100%)= Admission rating (60%) + Final control (40%)

An example of calculating a student's final grade:

Penalty points:

For example, a student missed 2 lectures = 1.0 x 2 = 2.0 points

For skipping 1 SIWT = 2.0 points

MK 1 – 80 points

MK 2 – 90 points

MK aver = (80-2)+90 = 84 points
2

The arithmetic mean of the current control (practice. and the lab. classes) – 80 points

SIW 1 – 75 points

SIW 2 – 85 points

SIWN... – the number of SIW

Average score for SIW = 75 + 85 + N... = 80 points
2 + N…

The average current score, taking into account SRO and penalty points:

CCaver* = CCaver + SIWaver - Kaver = 80 + (80 – 2,0) = 158 = 79,0
2 2 2

Admission rating (60%)=MCsr x 0.2 + CCsr x 0.4 = 84 x 0,2+ 79,0×0,4 =16,8+31,6=48,4 points

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

Final score (100%) =

1) RD (60%) + AR (40%) = 48,4 + 36 = 84,4 points

2) MCaver x 0.2 + CCsr x 0.4 + FC x 0.4=84.0 x 0.2 + 79.0 x 0.4 + 90 x0,4=16,8+31,6+36=84,4 points

MKaver – average assessment of midterm controls

MK– average assessment of current control

FR assessment of the final control

MK 1 - midterm control 1

MK 2 – midterm control 2

AD – admission rating

CCaver* is the average current score, taking into account SIW and starf points

Klek – the coefficient of skipping the 1st lecture

Caver – the pass rate of the 1st SIWT

14. Approval and revision

14. Approval and revision

Date of approval with the library and information center	Protocol № 4 26.06.25	Full name of the head of the BIC Дарбичева Р.И.	Signature
Date of approval at the department	Protocol №	Full name of the head	Signature
Date of approval at the		Head of the department "Morphophysiology"	

Work study program of the discipline		
Date of approval at the department	Protocol № 11 24.06.25	Тайсаев Б.Б. Head of the Department "Topographic anatomy and histology"
Date of approval at the department	Protocol № 11 26.06.25	Мурзалиева Д.А. Full name of the Chairman of the AC EP "Medicine"
Date of approval for AC EP	Protocol № 6 27.06.25	Дусенбаева Д. Full name of the head
Date of revision at the department	Protocol №	
Date of revision at AC EP	Protocol №	Full name of the Chairman of the AC EP "Medicine"