




<div>ОҢТҮСТІК ҚАЗАҚСТАН MEDISINA AKADEMIASY «Оңтүстік Қазақстан медицина академиясы» АҚ</div>		<div> SOUTH KAZAKHSTAN MEDICAL ACADEMY АО «Южно-Казахстанская медицинская академия»</div>
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Working program of the module (Syllabus)
Educational program: 6B10101 «General medicine»


1.	General information about the module		
1.1	Module code: BMPh-1203	1.6	Study year: 2022-2023
1.2	Module name: «Basics of morphology and Physiology»	1.7	Course: I
1.3	Prerequisites: school curriculum in biology, human anatomy, molecular biology and medical genetics	1.8	Semester: II
1.4	Postrequisites: module "Morphology and Physiology", general pathology (pathological anatomy, pathological physiology).	1.9	Number of credits (ECTS): 9/270
	Cycle: BD	1.10	Component: SC
2.	Discipline description		
Anatomical nomenclature. Planes and axes. Osteology. Syndesmology. Myology. Blood supply, venous outflow, innervation. Age, sex and individual characteristics of the musculoskeletal system. History of the development of histology, cytology and embryology. Research methods. Cytology. Human embryology. General histology. Subject, tasks, research methods in physiology, processes of excitation and inhibition in the central nervous system, their relationship and principles of regulation of physiological functions.			
3.	Summative assessment form		
3.1	<input checked="" type="checkbox"/> Testing	3.5	Coursework
3.2	Written	3.6	Essay
3.3	Oral	3.7	Project
3.4	<input checked="" type="checkbox"/> OSPE/OSKE or taking practical skills	3.8	Other (specify)
4.	Discipline objectives		
Achieving high levels of independent assessment of students' knowledge. Formation of students' knowledge and understanding of the structure and functions of the body of a healthy person and the mechanisms of their regulation. Apply fundamental theoretical knowledge about the structural and functional organization of life processes at the cellular, tissue and organ levels, reveal the patterns of their development and, in this regard, the possibility of purposeful influence on them for the preparation of a clinician.			
5.	Learning outcomes (discipline LO)		
LO 1	demonstrates knowledge of the subject and tasks of anatomy, histology and physiology, their significance for medicine; -knows the structure and general patterns of functioning of cells, tissues, regulation mechanisms, considered from the standpoint of general physiology and integrative behavioral activity of a person;		
LO 2	distinguishes, describes, compares the structural features of various cells, tissues, organs of the body and explains their functions; - possesses the skills of conducting laboratory studies of cells and methods of processing the results;		
LO 3	Able to visually and logically present information in the form of a presentation. - compares the physiological parameters (constants) of a healthy and diseased organism; - analyzes the information obtained in the course of experimental observations, determines its significance for characterizing the state of the organism.		
LO 4	transfers own knowledge and skills to students when conducting educational experiments or explaining theoretical material; - Possesses public speaking skills.		
LO 5	compares the results of experimental observations with data obtained from modern sources of information; makes conclusions based on the results of laboratory tests;		

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	- presents personal judgments at practical classes, student circle meetings, student scientific conferences.					
5.1	LO of the discipline		The learning outcomes of the EP, which are associated with the discipline LO			
	LO 1		LO 1- Provides patient- centered care in the field of biomedical, clinical, epidemiological and socio- behavioral sciences for the most common diseases			
	LO 2					
	LO 3					
	LO 4 LO 5		LO 4- Conducts effective measures aimed at the diagnosis, treatment, prevention of common and early forms of diseases.			
6.	Details of the discipline					
6.1	Location of the Department of Normal Anatomy – Al-Farabi square 1, main educational block, basement floor; tel.: – 40-82-22, 40-82-26 (263), e-mail anatomia.2012@mail.ru . www.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 Phisiology: Shymkent city, Al-Farabi square, educational block No. 2, 4th-5th floors; tel.: 40-82-26 (422, 423)					
6.2	Number of hours	Lectures	Practical lessons	Lab. lessons.	IWST	IWS
		15	75	-	54	126
7.	Information about teachers					
№	Full Name	Academic degree and position	e-mail	Priority research interests	Achievements	
1.	Tanabayev Baymahan Dilbarhaovich	Head of the department, Acting professors	b.tanabayev@mail.ru	Scientific direction - «Макро-микрогемоциркуляторноеру сло органов таза при перевязке внутренних подвздошных артерий».	Reads 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	Scientific direction - «Адам анатомиясындағы ішкі ағза ат ауларының ұлттық сипаты».	Reads lectures and conducts practical classes on anatomy in Kazakh, Russian and English.	
3.	Ignatyeva Anastasia Sergeyevna	senior teacher	zhelonkina_88@mail.ru		Reads lectures and performs practical lessons on normal	


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					anatomy in English.
4	Ormanbaev Kanat Serperovich	teacher	kanatserper@mail.ru	«Анатомические вариации артерии верхней конечности»	Reads lectures and performs practical lessons for anatomy in English.
5	Tagay Akniyet Bekzhigituly	teacher	Tagai.2011@mail.ru		conducts practical classes on Anatomy in English.
6	Seiil Birzhan Seiituly	teacher	Birzhan7101423@gmail.com	The role of local ethics committees in approving and monitoring publichealth research.	conducts practical classes on Anatomy in English.
	Auanasova Akerke Turebekovna	senior lecturer			She gives lectures and conducts practical classes in histology in English languages
	Edige Aidana Zhandosovna	senior lecturer	a.edige93@mail.ru	Scientific direction - "influence of climatic factors on the development of myocardial infarction among men of Shymkent»	She gives lectures and conducts practical classes in histology in English languages
	Nurmahan Darkhan Serikovich	teacher			Conducts practical classes in histology in Kazakh and English.
	Zhakupbekova Galiya Saparkyzy	head of the department, candidate of biological sciences	Galiya_074@mail.ru	Works on the topic "Influence of bioslastilin on the processes of lipid peroxidation in the hepatocyte and blood plasma during phosphorus intoxication"	Author of 35 scientific publications, prepared 1 prepatent, 1 patent


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		, acting professor			
	Kozhabekova Alma Serikkyzy	teacher	kozhabekova.alma@mail.ru	The theme of a doctoral dissertation is 'Diagnostic criteria and risk factors for colorectal cancer in Kazakhstan.'	Author of more than 25 scientific articles, including one indexed by the Scopus database (percentile – 45); provides physiology lectures and practical classes in English.
	Satybaldieva Nazgul Mutalkhankyzy	master, senior teacher	n_a_z_i_92@mail.ru	The topic of the scientific-research work is «Тыныс жүйесі Ауруларынан туындайтын мүгедектіктің әлеуметтік-медициналық мәселелері». Author of 8 scientific articles.	Provide practical physiology classes in Kazakh and Russian.


8. Thematic outline of the lecture						
Week	Topic name	Summary	LO of discipline	Number of hours	Form / Methods / Teaching Technologies	Forms / methods of assessment
1	Lecture №1 (anatomy). The subject and tasks of anatomy. General characteristics of tissues, organs, body systems. The initial stages of human embryogenesis.	Anatomy as a fundamental science of medicine. Main tasks of anatomy. Types of tissues. The main stages of ontogenesis. Intrauterine (prenatal) period. Extrauterine (postnatal) period.	LO 1	1	Introductory lecture	Feedback (test and situational tasks)
	Practical class 1 (anatomy). International anatomical nomenclature. The concept of	Anatomical nomenclature. Plane and axis. Skeleton of	LO 1 LO 2 LO 5	2	Work in small groups with anatomical	Oral questioning with a demonstration

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	axes and planes. An overview of the skeleton. The structure of the bones of the trunk: vertebrae, sternum, ribs. Age features of the bones of the trunk.	the trunk. Vertebral column. Rib cage. Features of the structure of the vertebrae. The structure of the sacrum, coccyx, ribs, sternum. Age features of the bones of the trunk.			preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov.	of the anatomical structures on dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov", solving of MCQs and situational tasks.
	Practical class 1 (histology). Topic: Basic principles of manufacturing histological preparations. Microscopy. Histological technique.	The main stages of manufacturing a fixed and colored histological preparation. Principles of operation and use of special microscopy devices.	LO1 LO2 LO5	2	Microscopy, description of histological preparations and microphotographs, work in histolaboratory.	Checklist for assessment of the practical class.
	Practical class 1 (physiology). Physiology of excitable tissues. Parameters of excitability.	Resting potentials. Local response. Action potentials Membrane-ionic theory of their origination. Bioelectrical phenomena in living tissues	LO1 LO2 LO5		Discussion of the main issues of the topic, sketching of the main processes, work in the small groups, solving of cases and MCQ	Oral questioning, checking of understanding the schemes, assessment of the case and MCQ answers
	IWST/IWS 1 (anatomy). Physiological and pathological curvatures of the vertebral column	Physiological and pathological curvatures of the vertebral column. Causes, mechanisms of development and methods of treatment of pathological curvatures. Types of posture.	LO1 LO2 LO3 LO4	1/2	-presentation -assessment of mastery of practical skills -description of the X-ray	Oral questioning. Assessment lists for all forms of the completed assignment
	IWST/IWS 1 (histology). IWST/IWS 1 (physiology). Distribution of topics of ISW.	Consultations on making ISW.	LO1	-/3	Consultations on making ISW 1.	
2	Lecture №1 (histology) Topic: Cytology. Embryology.	Subject of study of Cytology, histology, embryology, its	LO 1	1	Review lecture	Answers to control questions.

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		sections. Methods of research in histology. Levels of structural organization of the body. Structure of cells and non-cellular structures. Stages of embryo development.				
	Practical class 2 (anatomy). Structure of the bones of the shoulder girdle and free upper limb. Age features.	Bones of the shoulder girdle. The structure of the scapula and clavicle. The skeleton of the free part of the upper limb. The structure of the humerus, the bones of the forearm: radius and ulna; bones of the hand: bones of the wrist, metacarpal bones, bones of the fingers. Age features of the bones of the shoulder girdle and free upper limb.	LO1 LO2 LO5	2	Work in small groups with anatomical preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov.	Oral questioning with a demonstration of the anatomical structures on dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov", solving of MCQs and situational tasks.
	Practical class 2 (histology). Topic: Cytology. Cell and non-cellular structures. Plasmolemma.	Recognize cells and non-cellular structures. Distinguish between the nucleus, cytoplasm, and cytolemma in cells. Distinguish between structures on the free and contacting cell surface-microvilli, cilia, intercellular contacts.	LO1 LO2 LO5	2	Microscopy, description of histological preparations and photomicrographs, work in small groups.	Checklist for assessment of the practical class.
	Practical class 2 (physiology). Laws of Prorogating of Action Potentials through Nerve Fibres. Parabiosis	The notion of 'nerve fibre'. The mechanism of excitation in the nerve fibres. Nerve fibres (afferent, efferent). Nerves (sensory, motor, vegetative). Optimum and pessimum of frequency and strength	LO1	2	Discussion of the main issues of the topic, sketching of the main processes, work in the small groups, solving of cases and MCQ	Oral questioning, checking of understanding the schemes, assessment of the case and MCQ answers

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		of irritation. Parabiosis.				
	IWS2/IWS 2 (anatomy). Thoracic cage in a whole.	Thoracic cage. Superior and inferior thoracic aperture. Normal and pathological shapes of the thoracic cage.	LO1 LO2 LO3 LO4	1/2	-presentation -assessment of mastery of practical skills -description of the X-ray	Oral questioning. Assessment lists for all forms of the completed assignment
	IWS2/IWS 2 (histology). Cytology. The reaction of cells to damaging effects. Aging and cell death.	The combination of features of functioning of the cells. The reaction of cells to damage. Morphological signs of apoptosis and necrosis.	LO3 LO4	1/2	Work in small groups, sketching histological slides, preparing presentations on histological slides, compiling a glossary.	Checklist for assessment of the ISW class on histology basics.
	IWS2/IWS 2 (physiology). Functions of biological membranes. Ion channels.	Basic principles of functioning of biological membranes. Ion channels. Membrane-ionic theory of their origin. Transport of substances across membranes. Active and passive transport (types and mechanisms).	LO1	1/3	Preparation and presentation in the Power Point	Checking for plagiarism, the presentation
3	Lecture №1 (physiology). General characteristics of Physiology as a science. Physiology of excitable tissues.	Physiology as a science about the functioning (vital activity) of a healthy organism. Physiology of excitable tissues. Resting potential. Action potential. Refractoriness. Parabiosis.	LO1	1	Introductory Lecture	Feedback (test and situational tasks)
	Practical class 3 (anatomy). Structure of bones of pelvic girdle and free lower limb. Age features.	Bones of the pelvic girdle. The structure of the hip bone. The skeleton of the free lower limb. The structure of the femur, patella, bones of the leg: tibia and fibula; bones of the foot: bones of the tarsus, metatarsal bones,	LO1 LO2 LO5	1	Work in small groups with anatomical preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov.	Oral questioning with a demonstration of the anatomical structures on dummies, skeleton, tablets, posters, an interactive

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		bones of the fingers. Age features of the bones of the pelvic girdle and free lower limb.				anatomical table "Pirogov", solving of MCQs and situational tasks.
	Practical class 3 (histology). Topic: Cytology. Membrane organelles and non-membrane organelles. Inclusions.	Know the cell organelles. Explain the role of organelles in the life of cells. Identify different types of inclusions in the cell cytoplasm.	LO1 LO2 LO5	1	Microscopy, description of histological preparations and photomicrographs, work in small groups.	Checklist for assessment of the practical class.
	Practical class 3 (physiology). Physiology of Synapses	The mechanism of synaptic transmission. The interaction between neurotransmitter and receptors of the postsynaptic membrane. Stages of synaptic transmission. Ultrastructure of the Synapse.	LO1 LO2 LO5	1	Discussion of the main issues of the topic, sketching of the main processes, work in the small groups, solving of cases and MCQ	Oral questioning, checking of understanding the schemes, assessment of the case and MCQ answers
	IWST/IWS 3 (anatomy). Determination of the belonging of paired bones to the right or left half of the skeleton.	Skeleton bones. Paired bones of the skeleton.	LO1 LO2 LO3 LO4	2/2	-presentation -assessment of mastery of practical skills -description of the X-ray	Oral questioning. Assessment lists for all forms of the completed assignment
	IWST/IWS 3 (histology). Embryology of a human being. Critical periods of development.	Critical periods of human embryogenesis. The concepts of determination and differentiation. Damaging factors are most dangerous for the fetus especially in the first three months	LO 4 LO 3	2/2	Work in small groups, sketching histological slides, preparing presentations on histological slides, compiling a glossary.	Checklist for assessment of the ISW class on histology basics.
	IWST/IWS 3 (physiology). Physiological bases of labor activity, features of physical and mental labor.	Types of human labor activity. Classification of labor according to severity and intensity. Working capacity. Methods for assessing physical performance.	LO1	2/2	Preparation and presentation in the Power Point	Checking an essay for plagiarism, the presentation

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4	Lecture №2 (anatomy). General anatomy of the musculoskeletal system. Bone as an organ. Structure and development of bones. Classification of bones. The role of social and biological factors in the development and structure of the skeleton. An overview of the bones of the trunk, upper and lower extremities. Age features.	The components of the musculoskeletal system. Chemical composition of bone. The structural unit of the bone. Classification of bones. The bones of the trunk. Bones of the shoulder girdle, free upper limb. Bones of the pelvic girdle and free lower limb. Age features.	LO1	1	Review lecture	Feedback (test and situational tasks)
	Practical class 4 (anatomy). Structure of the bones of the neurocranium. Age features.	Paired and unpaired bones of the neurocranium. Structure of the frontal, sphenoid, occipital, parietal, ethmoid, temporal bones. Age features of the bones of the neurocranium.	LO1 LO2 LO5	2	Work in small groups with anatomical preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov.	Oral questioning with a demonstration of the anatomical structures on dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov", solving of MCQs and situational tasks.
	Practical class 4 (histology). Topic: Cytology. The nucleus. Cell division. Cell cycle.	To identify the structure of the nucleus at the micro and submicroscopic levels. Determine the main phases of mitosis: prophase, metaphase, anaphase, telophase.	LO1 LO2 LO5	2	Microscopy, description of histological preparations and photomicrographs, work in small groups.	Checklist for assessment of the practical class.
	Practical class 4 (physiology). Reflex activity of the central nervous system (CNS). Spinal Reflexes.	Reflex is the basis of the central nervous system's activity. Types of reflexes. Analysis of the reflex arc. Reflex circuit. Spinal reflexes.	LO1 LO2 LO5	2	Discussion of the main issues of the topic, sketching of the main processes, work in the small groups, solving of cases and MCQ	Oral questioning, checking of understanding the schemes, assessment of the case and MCQ answers

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	IWST/IWS 4 (anatomy). Canals of the temporal bone.	Carotid canal, muscular-tubal canal, facial canal, tympanic canal, mastoid canal.	LO1 LO2 LO3 LO4	1/2	-presentation -assessment of mastery of practical skills -description of the X-ray	Oral questioning. Assessment lists for all forms of the completed assignment
	IWST/IWS 4 (histology). Patterns of origin and evolution of tissues. Classification of tissues. System-forming factors, mechanisms of tissue homeostasis. Limits of tissue variability.	Classification and properties of tissues. The study of system- forming factors. Regenerative abilities of tissues, physiological and reparative regeneration.	LO3 LO4	1/2	Work in small groups, sketching histological slides, preparing presentations on histological slides, compiling a glossary.	Checklist for assessment of the ISW class on histology basics.
	IWST/IWS 4 (physiology). Nociceptive and antinociceptive systems of the body	Types, manifestations, biological significance of pain. nociceptive reception. Conduction of pain sensitivity. Antinociceptive system of the body.	LO1	1/3	Preparation and presentation in the Power Point	Checking an essay for plagiarism, the presentation
5	Lecture №2 (histology). Topic: Fundamentals of the doctrine of tissues. Connective tissue. Skeletal tissue.	Tissue as a system. Structural elements and classification of connective tissues. Structural features of various types of skeletal tissues.	LO 1	1	Review lecture	Answers to control questions.
	Practical class 5 (anatomy). Structure of the bones of the facial skull. Age features.	Paired and unpaired bones of the facial skull. The structure of the maxilla, palatine bones, inferior nasal concha, vomer, nasal, lacrimal, zygomatic bones, mandible, hyoid bone. Age features of the bones of the facial skull.	LO1 LO2 LO5	2	Work in small groups with anatomical preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov.	Oral questioning with a demonstration of the anatomical structures on dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov", solving of MCQs and situational tasks.
	Practical class 5 (histology). Topic: Human embryology-1. The progenesis. Initial period of embryonic development.	Embryology of a human being. The progenesis. Fertilization. Crushing.	LO1 LO2 LO5	2	Microscopy, description of histological preparations and	Checklist for assessment of the practical class.

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		Blastocyst. Implantation.			photomicrographs work in small groups.	
	Practical class 5 (physiology). Features of the Propagating the Excitation in the CNS. Nerve Centre. Inhibition in the CNS.	Properties of the Nerve Centers. Coordinative processes of excitation in the central nervous system. Types of inhibition in the central nervous system.	LO1	2	Discussion of the main issues of the topic, sketching of the main processes, work in the small groups, solving of cases and MCQ	Oral questioning, checking of understanding the schemes, assessment of the case and MCQ answers
	IWST/IWS 5 (anatomy) Skull of a newborn. Changes in the skull after birth.	Individual and gender features of the skull. Skull of a newborn. Changes in the skull after birth.	LO1 LO2 LO3 LO4	1/2	-presentation -assessment of mastery of practical skills -description of the X-ray	Oral questioning. Assessment lists for all forms of the completed assignment
	IWST/IWS 5 (histology). Specialization of epithelial tissues in the composition of mucous membranes and organs.	Features of the structure of epithelial tissues in the composition of various mucous membranes and organs.	LO 4 LO 3	1/2	Work in small groups, sketching histological slides, preparing presentations on histological slides, compiling a glossary.	Checklist for assessment of the ISW class on histology basics.
	IWST/IWS 5 (physiology). Pathways of the spinal cord.	Major pathways of the spinal cord. Afferent (sensory) pathways. Efferent (motor) pathways of the spinal cord	LO1	1/3	Preparation and presentation in the Power Point	Checking an essay for plagiarism, the presentation
6	Lecture №2 (physiology). General physiology of the CNS. Neuron, types, functions. Methods for studying the central nervous system. Reflex activity of the central nervous system	Physiological properties and functions of the neuron. Morphological features of nerve endings. Neuroglia, nerve fibers, types, mechanisms of excitation transmission. Synapses and mediators of the CNS. Reception. The reflex is the basis of the activity of the	LO1	1	Review lecture	Feedback (test and situational tasks)

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	central nervous system. Morphophysiological characteristics of the central and peripheral parts of the somatic nervous system.				
Practical class 6 (anatomy). Topography of the skull. Skull as a whole. Age features.	Skull as a whole. Topography of the cerebral division of the skull. Topography of the facial division of the skull. The calvaria of the skull. Inner and outer base of the skull. Age features of the skull.	LO1 LO2 LO5	1	Work in small groups with anatomical preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov.	Oral questioning with a demonstration of the anatomical structures on dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov", solving of MCQs and situational tasks.
Practical class 6 (histology). Topic: Human embryology-2. Embryonic period of embryonic development. Extra-embryonic organs.	Embryology of a human being. Implantation. Gastrulation. Differentiation of germ leaves. Histogenesis and organogenesis. Pharmacist bodies. Placenta. Types of placentas.	LO1 LO2 LO5	1	Microscopy, description of histological preparations and photomicrographs, work in small groups.	Checklist for assessment of the practical class.
Practical class 6 (physiology). Types of Higher Nervous Activity (HNA). I and II signal systems.	The Pavlov's doctrine about the higher nervous activity. Types of the higher nervous activity. The First and Second Signaling System. Speech. Physiologic Mechanisms of Memory. Four temperaments. Physiologic Methods for Investigation of the	LO1	1	Discussion of the main issues of the topic, sketching of the main processes, work in the small groups, solving of cases and MCQ	Oral questioning, checking of understanding the schemes, assessment of the case and MCQ answers

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		Higher Mental Functions.				
	IWS/IWS 6 (anatomy). Topography of the facial skull	Eye socket. The nasal cavity. Bony (hard) palate. Pterygoid palatine fossa. Developmental defects.	LO1 LO2 LO3 LO4	2/2	-presentation -assessment of mastery of practical skills -description of the X-ray	Oral questioning. Assessment lists for all forms of the completed assignment
	IWS/IWS 6 (histology). Glands. Histophysiology of the secretory process. Types of secretion.	Features of the structure of epithelial tissues in the composition of various mucous membranes and organs.	LO 4 LO 3	2/2	Work in small groups, sketching histological slides, preparing presentations on histological slides, compiling a glossary.	Checklist for assessment of the ISW class on histology basics.
	IWS/IWS 6 (physiology). Humoral regulation of functions. Age features.	Endocrine glands (pituitary, thyroid, parathyroid, thymus) and their hormones. The mechanism of action of hormones. Age features.	LO1	2/3	Preparation and presentation in the Power Point	Checking an essay for plagiarism, the presentation
7	Lecture №3 (anatomy). General overview of bones of the head. Bones of the cerebral and facial divisions of the skull. Anatomy and topography of the skull as a whole. Development of the human skull. Age, gender and typical features of the structure of the human skull.	Bones of the cerebral and facial divisions of the skull. Age and gender features of the structure of the skull. Skull of a newborn. Fontanelles. Changes in the skull after birth.	LO1	1	Review Lecture	Feedback (test and situational tasks)
	Practical class 7 (anatomy). Connections of the bones of the head and trunk: structure and function. Age features.	Joints of the skull. Structure and function of the temporomandibular joint. Joints of the trunk. Joints of the vertebral column. Connections of the sacrum with the coccyx. Structure and function of the sacroiliac joint. Joints of the vertebral	LO1 LO2 LO5	2	Work in small groups with anatomical preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov.	Oral questioning with a demonstration of the anatomical structures on dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov",

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		column with the skull. The structure and function of the atlantooccipital, mid-atlantoaxial joints. Vertebral column. Joints of the ribs with the vertebral column. Thorax as a whole. Age features.				solving of MCQs and situational tasks.
	Practical class 7 (histology). Topic: Loose unformed fibrous connective tissue. Dense connective tissue. Connective tissues with special properties.	Identify structural components (cells and non-cellular structures) in various types of connective tissue at the microscopic and ultramicroscopic levels.	LO1 LO2 LO5	2	Microscopy, description of histological preparations and photomicrographs, work in small groups.	Checklist for assessment of the practical class.
	Practical class 7 (physiology). Metabolism. Nutrition	The meaning of metabolism. Methods for determining the body's energy consumption (direct and indirect calorimetry). Physiology of rational nutrition. Sensible adjusted nutrition. Diet.	LO1	2	Discussion of the main issues of the topic, sketching of the main processes, work in the small groups, solving of cases and MCQ	Oral questioning, checking of understanding the schemes, assessment of the case and MCQ answers
	IWS/ IWS 7 (anatomy). Midterm examination -I.	Consolidation of the material covered on the topics of the lecture, practical training, IWS and IWS	LO1 LO2 LO3 LO4	1/-	Testing and oral questioning on the topics covered using anatomical preparations, skeleton, skull, dummies, tablets, posters.	Oral questioning. Assessment lists for all forms of the completed assignment
	IWS/ IWS 7 (histology). Midterm control- 1	To summarize the development of theoretical and practical material.	LO1 LO2 LO3 LO4 LO5	1/2	1. The ability to microscopize histological preparations. 2. Ability to draw and describe histological slides and micrographs 3. Ability to answer test	Testing on the Quiz platform. Diagnostics of microphotographs and micropreparations (checklist of assessment of ME).

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					questions in Quizizz.	
	IWS7/IWS 7 (physiology). Midterm examination - 1	Summarizing of the learning materials have been studied at the <i>lectures</i> , practical and SIW classes for 1 st – 7 th weeks	LO1	1	Writing questioning by cards, MCQ testing	Assessment of the oral response, checking the MSQ answers
8	Lecture №3 (histology). Topic: Epithelial tissue. Muscle tissue. Glands.	Sources of development, features of the structure of different types of epithelium and their functional significance. Representation of the structure of glands, histophysiology of the secretory process. Types of muscle tissue.	LO 1	1	Review lecture	Answers to control questions.
	Practical class 8 (anatomy). Connections of bones of shoulder girdle and free upper limb: structure and function. Age features.	Connections of the bones of the shoulder girdle. The structure and function of the sternoclavicular, acromioclavicular joints. Joints of free upper limb. The structure and function of the shoulder, elbow, wrist joints. Connections of the bones of the hand. Age features of joints.	LO1 LO2 LO5	2	Work in small groups with anatomical preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov.	Oral questioning with a demonstration of the anatomical structures on dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov", solving of MCQs and situational tasks.
	Practical class 8 (histology). Topic: Cartilaginous tissue	To determine the varieties of cartilage structural characteristics of the intercellular substance and know their histogenetically features. Describe the main stages of cartilage regeneration.	LO1 LO2 LO5	2	Microscopy, description of histological preparations and photomicrographs, work in small groups.	Checklist for assessment of the practical class.
	Practical class 8 (physiology). Thermoregulation	Body thermoregulation and isothermia. Notion and types. Chemical	LO1	2	Discussion of the main issues of the topic, sketching	Oral questioning, checking of

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		thermoregulation. Physical thermoregulation. Hypothermia and hyperthermia.			of the main processes, work in the small groups, solving of cases and MCQ	understanding the schemes, assessment of the case and MCQ answers
	IWS/IWS 8 (anatomy). Modeling the movements in the joints.	Characteristics of joints. Basic and auxiliary elements of the joints. Biomechanics of joints.	LO1 LO2 LO3 LO4	1/2	-presentation -assessment of mastery of practical skills -description of the X-ray	Oral questioning. Assesmant lists for all forms of the completed assignment
	IWS/IWS 8 (histology). Blood and lymph. Age histology and regeneration of the blood	Age-related features of blood and lymph. Features of blood regeneration.	LO 4 LO 3	1/2	Work in small groups, sketching histological slides, preparing presentations on histological slides, compiling a glossary.	Checklist for assessment of the ISW class on histology basics.
	IWS/IWS 8 (physiology). Physiological bases of blood transfusion. Hemotransfusion	Blood groups and physiological bases of blood transfusion. Hemotransfusion.	LO1	1/3	Preparation and presentation in the Power Point	Checking an essay for plagiarism, the presentation
9	Lecture №3 (physiology). Physiological properties of skeletal, cardiac and smooth muscles.	The mechanism of muscle contraction and relaxation. Muscle fatigue. Morpho-physiological features of smooth muscles. Physiological properties of cardiac muscles.	LO1	1	Review lecture	Feedback (test and situational tasks)
	Practical class 9 (anatomy). Connections of bones of pelvic girdle and the free lower limb: structure and functions. Age features.	Connections of bones of pelvic girdle. Structure and function of the sacroiliac joint, pubic symphysis. The pelvis as a whole. Joints of free lower limb. Structure and function of the hip, knee joints, ankle joints, foot bones. Foot as a whole. Age features.	LO1 LO2 LO5	1	Work in small groups with anatomical preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov.	Oral questioning with a demonstration of the anatomical structures on dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov",

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					solving of MCQs and situational tasks.
Practical class 9 (histology). Topic: Bone tissue.	Distinguish lamellar bone tissue from tissue and know their histogenetically features. To characterize the principal stages in the histogenesis and regeneration of bone tissue	LO1 LO2 LO5	1	Microscopy, description of histological preparations and photomicrographs, work in small groups.	Checklist for assessment of the practical class.
Practical class 9 (physiology). Physiological properties of the cardiac muscle.	Physiological properties of the cardiac muscle. Functions of the heart. nervous regulation. Autonomic innervation of the heart. Methods for the study of cardiac activity. ECG	LO1	1	Discussion of the main issues of the topic, sketching of the main processes, work in the small groups, solving of cases and MCQ	Oral questioning, checking of understanding the schemes, assessment of the case and MCQ answers
IWST/IWS 9 (anatomy). Measurement of the small and large pelvis using pelvic bone models, clinical significance in obstetrics and gynecology.	Pelvis as a whole. The dimensions of the large and small pelvis. The clinical significance of the size of the pelvis in obstetrics and gynecology. Narrow pelvis. Types of narrow pelvis. Causes. Delivery with a narrow pelvis.	LO1 LO2 LO3 LO4	2/2	-presentation -assessment of mastery of practical skills -description of the X-ray	Oral questioning. Assessment lists for all forms of the completed assignment
IWST/IWS 9 (histology). Hematopoiesis. Embryonic hematopoiesis. Age and histology.	Features of embryonic hematopoiesis and its main stages	LO 4 LO 3	2/2	Work in small groups, sketching histological slides, preparing presentations on histological slides, compiling a glossary.	Checklist for assessment of the ISW class on histology basics.
IWST/IWS 9 (physiology). Microcirculation.	The movement of blood in the microcirculatory bed. Arterioles, metaarterioles,	LO1	2/2	Preparation and presentation in the Power Point	Checking an essay for plagiarism, the presentation

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		capillaries, postcapillaries, venules, arteriolovenous anastomoses.				
10	Lecture №4 (anatomy). The concept of joints of bones. Development of connections. Types of bone connections. Classification of bone connections. Age features.	Types of connection of bones. Biomechanics of joints. Development of connections. Classification of joints.	LO1	1	Review Lecture	Feedback (test and situational tasks)
	Practical class 10 (anatomy). Muscles and fascia of the head and neck: structure, topography and functions. Age-related anatomy of muscles.	Muscles and fascia of the head and neck. Structure, topography and functions of chewing and facial muscles. Age-related anatomy of muscles of the head and neck.	LO1 LO2 LO5	2	Work in small groups with anatomical preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov.	Oral questioning with a demonstration of the anatomical structures on dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov", solving of MCQs and situational tasks.
	Practical class 10 (histology). Topic: Muscle tissue.	To give morphofunctional characteristic of muscle tissues. Identify smooth and striated muscle tissue. Explain the structural differences in the organization of slow and fast muscle fibers	LO1 LO2 LO5	2	Microscopy, description of histological preparations and photomicrographs, work in small groups.	Checklist for assessment of the practical class.
	Practical class 10 (physiology). Physiological properties of muscles. Types of muscle contractions.	The mechanism of muscle contraction and relaxation. Morphophysiological features of smooth muscles	LO1	2	Discussion of the main issues of the topic, sketching of the main processes, work in the small groups, solving of cases and MCQ	Oral questioning, checking of understanding the schemes, assessment of the case and MCQ answers
	IWST/IWS 10 (anatomy). Practical significance of the triangles of the neck. Blood	Triangles of the neck. Boundaries and contents of triangles.	LO1 LO2 LO3	1/2	- presentation	Oral questioning.

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	supply, venous outflow, innervation of the muscles of the head and neck.	Blood supply, venous outflow, innervation of the muscles of the head and neck.			-assessment of mastery of practical skills - passage and areas of innervation of nerves - passage and areas of blood supply of arteries	Assessmant lists for all forms of the completed assignment
	IWST/IWS 10 (histology). Cartilage. Age and histology. Regeneration. Bone.	Age-related features of cartilage tissue. Mechanism of cartilage regeneration. Features of bone regeneration, ectopic develop	LO 4 LO 3	1/2	Work in small groups, sketching histological slides, preparing presentations on histological slides, compiling a glossary.	Checklist for assessment of the ISW class on histology basics.
	IWST/IWS 10 (physiology). Immunity. Types of immunity.	Cellular nonspecific immunity. specific immunity. Lymphocytes. Phases of the immune response. Antigens. Antibodies. Immunological surveillance. The role of the thymus, spleen, lymph nodes. Basic methods for studying the organs of the immune system.	LO1	1/3	Preparation and presentation in the Power Point	Checking an essay for plagiarism, the presentation
11	Lecture №4 (histology). Topic: The blood and lymph. Hemopoiesis.	Blood as a tissue. Morphological and functional characteristics of blood. Features of embryonic hematopoiesis. Representation of the unitary theory of hematopoiesis.	LO 2	1	Review lecture	Answers to control questions.
	Practical class 11 (anatomy). Muscles and fascia of the trunk: structure, topography and functions. Blood supply, venous	Muscles and fascia of the back. Muscles and fascia of the thorax. Muscles and fascia of	LO1 LO2 LO5	2	Work in small groups with anatomical preparations, skeleton,	Oral questioning with a demonstration of the anatomical

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outflow, innervation. Age-related anatomy of muscles.	the abdomen. Diaphragm. Blood supply, venous drainage, innervation.			dummies, tables, tablets. Work on the interactive table Pirogov.	structures on dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov", solving of MCQs and situational tasks.
Practical class 11 (histology). Topic: Epithelial tissue. Glands.	To determine the epithelial tissue at the microscopic level. Characterize the main morphofunctional and histogenetic features of epithelial tissues .Types of glands.	LO1 LO2 LO5	2	Microscopy, description of histological preparations and photomicrographs , work in small groups.	Checklist for assessment of the practical class.
Practical class 11 (physiology). Endocrine glands. General characteristics of endocrine glands	Endocrine glands. Mechanism of the hormonal effect. Hypothalamic-pituitary system	LO1 LO2 LO5	2	Discussion of the main issues of the topic, sketching of the main processes, work in the small groups, solving of cases and MCQ	Oral questioning, checking of understanding the schemes, assessment of the case and MCQ answers
IWST/IWS 11 (anatomy). Linea alba. Tendon sheath of the rectus abdominis muscle. Inguinal canal. Blood supply, venous outflow, innervation. Age features.	Structure, topography and function. The formation of a white line of the abdomen, its practical significance. Inguinal rings. Walls of the inguinal canal. Blood supply, venous outflow, innervation. Age features of umbilical ring and inguinal canal.	LO1 LO2 LO3	1/2	-presentation -assessment of mastery of practical skills	Oral questioning. Assessment lists for all forms of the completed assignment
IWST/IWS 11 (histology). The restructuring of the bones, factors influencing its structure. Connecting bones.	Factors affecting the rebuilding of bone, ectopic development, the connection of bones.	LO 4 LO 3	1/2	Work in small groups, sketching histological slides, preparing presentations on histological	Checklist for assessment of the ISW class on histology basics.

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					slides, compiling a glossary.	
	IWST/IWS 11 (physiology). Vitamins that affect bone remodeling	Vitamins and their types. Significance in the life of the body. Need for vitamins. Vitamins that affect bone remodeling	LO1	1/3	Preparation and presentation in the Power Point	Checking an essay for plagiarism, the presentation
12	Lecture №4 (physiology). Physiology of blood. Composition of blood, formed elements of blood and their functions.	Physiology of blood. Composition of blood, formed elements of blood and their functions. Hemostasis.	LO1	1	Overview lecture	Feedback (test and situational tasks)
	Practical class 12 (anatomy). Muscles and fascia of the shoulder girdle and free upper limb: structure, topography and functions. Age-related anatomy of muscles.	Muscles of the the shoulder girdle. Muscles of the shoulder. The muscles of the forearm. The muscles of the hand. Structure, topography and functions. Age-related anatomy of muscles of the shoulder girdle and free upper limb.	LO1 LO2 LO5	1	Work in small groups with anatomical preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov.	Oral questioning with a demonstration of the anatomical structures on dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov", solving of MCQs and situational tasks.
	Practical class 12 (histology). Topic: The blood and lymph.	Morphofunctional characteristics of blood as tissue. Distinguish between red blood cells, neutrophilic, eosinophilic, basophilic granulocytes, lymphocytes and monocytes in the preparation of a blood smear stained with Azur II and eosin	LO1 LO2 LO5	1	Microscopy, description of histological preparations and photomicrographs , work in small groups.	Checklist for assessment of the practical class.
	Practical class 12 (physiology). General Characteristics of Body Fluids. The Physiology of the Blood. ESR. Haemolysis	The notion of the internal environment of an organism. Common physicochemical properties of the	LO1	1	Discussion of the main issues of the topic, sketching of the main processes, work in the small	Oral questioning, checking of understanding the schemes, assessment of

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		blood. Amount, functions, and composition of the blood. Blood cells. ESR. Haemolysis and its types. Blood groups.			groups, solving of cases and MCQ	the case and MCQ answers
	IWS/IWS 12 (anatomy). Blood supply, venous outflow, innervation of the muscles of the shoulder girdle and free upper limb.	Blood supply, venous outflow, innervation of the muscles of the shoulder girdle and free upper limb.	LO1 LO2 LO3	1/2	- presentation -assessment of mastery of practical skills - passage and areas of innervation of nerves - passage and areas of blood supply of arteries	Oral questioning. Assessment lists for all forms of the completed assignment
	IWS/IWS 12 (histology). Muscle tissue. Regeneration of skeletal muscle tissue.	Mechanisms of regeneration of various types of muscle tissues, their structure features depending on the age of the person.	LO 4 LO 3	2/3	Work in small groups, sketching histological slides, preparing presentations on histological slides, compiling a glossary.	Checklist for assessment of the ISW class on histology basics.
	IWS/IWS 12 (physiology). Importance of water and salts in the body.	Basic principles of the exchange of mineral salts and water. intracellular fluid. Tissue or interstitial fluid. Sodium, potassium, calcium values.	LO1	2/2	Preparation and presentation in the Power Point	Checking an essay for plagiarism, the presentation
13	Lecture №5 (anatomy). General myology. Muscle as an organ. Development of muscles in ontogenesis. Classification of muscles. Auxiliary apparatus of muscles. Biomechanics of muscles: anatomical and physiological diameters of muscles. Lifting force. External and internal forces acting on the	The structure of muscles. Muscle as an organ. Classification of muscles. Supporting apparatus of muscles. Work of muscles. Development of muscles. Age-related anatomy of muscles.	LO1	1	Review Lecture	Feedback (test and situational tasks)

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	muscles and joints. Age-related anatomy of muscles.					
	Practical class 13 (anatomy). The fascia of the upper limb and the tendons sheath. Topography of the upper limb. Blood supply, venous outflow, innervation. Age features.	Topography of the upper limb. Fascia, synovial bursas and tendons sheath of the upper limb. Blood supply, venous outflow, innervation. Age features.	LO1 LO2 LO5	2	Work in small groups with anatomical preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov.	Oral questioning with a demonstration of the anatomical structures on dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov", solving of MCQs and situational tasks.
	Practical class 13 (histology). Topic: Postembryonal hematopoiesis	Unitary theory of hematopoiesis. Features of post-embryonic hematopoiesis. The main regularities of ultrastructural and histochemical changes in hematopoietic cells in the process of their differentiations.	LO1 LO2 LO5	2	Microscopy, description of histological preparations and photomicrographs, work in small groups.	Checklist for assessment of the practical class.
	Practical class 13 (physiology). Conditioned Reflexes Activity, types of conditioned reflexes.	Conditioned unconditioned reflexes. Instinct. Conditioned reflex activity and its neurophysiological mechanisms, types of conditioned reflexes. Classification of conditioned reflexes. The mechanism of formation of temporary connections in the brain. Cortical inhibition.	LO1	2	Discussion of the main issues of the topic, sketching of the main processes, work in the small groups, solving of cases and MCQ	Oral questioning, checking of understanding the schemes, assessment of the case and MCQ answers
	IWST/IWS 13 (anatomy). Topography of the axillary and ulnar fossae.	Topography, borders, walls and openings of the axillary and ulnar fossae.	LO1 LO2 LO3	1/2	-presentation -assessment of mastery of practical skills	Oral questioning. Assessment lists for all forms of the completed assignment

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	IWS/IWS 13 (histology). Possibilities of regeneration of cardiac muscle tissue. Muscle tissue of epidermal and neural origin	Physiological properties of heart and smooth muscles. The mechanism of muscle contraction and relaxation.	LO 4 LO 3	1/2	Work in small groups, sketching histological slides, preparing presentations on histological slides, compiling a glossary.	Checklist for assessment of the ISW class on histology basics.
	IWS/IWS 13 (physiology). Physiological properties of cardiac and smooth muscles. Electrical phenomena in the heart, conduction of excitation.	The mechanism of muscle contraction and relaxation. Morphophysiological features of smooth muscles. Electrical phenomena in the heart, conduction of excitation.	LO1	1/3	Preparation and presentation in the Power Point	Checking an essay for plagiarism, the presentation
14	Lecture №5 (histology). Topic: Nervous tissue. Nerve cells and neuroglia. Nerve fibers, nerve endings, synapses.	Fine structure of nerve cells and neuroglia, nerve fibers and nerve endings, synapses.	LO 1	1	Review lecture	Feed back
	Practical class 14 (anatomy). Muscles and fascia of the pelvic girdle and free lower limb: structure, topography and functions. Blood supply, venous outflow, innervation. Age-related anatomy of muscles.	Muscles of the pelvis. Muscles of the thigh. Muscles of the lower leg. Muscles of the foot. Structure, topography and functions. Blood supply, venous outflow, innervation. Age-related anatomy of muscles of the pelvic girdle and free lower limb.	LO1 LO2 LO5	2	Work in small groups with anatomical preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov.	Oral questioning with a demonstration of the anatomical structures on dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov", solving of MCQs and situational tasks.
	Practical class 14 (histology). Topic: Nervous tissue. Neurocytes. Neuroglia.	Identify different types of neurocytes. Explain the cytological features of nerve cells at the microscopic and ultramicroscopic levels.	LO1 LO2 LO5	2	Microscopy, description of histological preparations and photomicrographs, work in small groups.	Checklist for assessment of the practical class.
	Practical class 14 (physiology). General Characteristics of Analyzers.	The notion of sensory systems. Properties of analyzers. Types of analyzers (visual	LO1	2	Discussion of the main issues of the topic, sketching of the main	Oral questioning, checking of understanding

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		auditory, taste, olfactory, vestibular, temperature analyzers). Somatosensory system. Temperature analyzer.			processes, work in the small groups, solving of cases and MCQ	the schemes, assessment of the case and MCQ answers
	IWS/ IWS 14 (anatomy). Midterm examination – II.	Consolidation of the material covered on the topics of the lecture, practical training, IWS and IWS.	LO1 LO2 LO3 LO4 LO5	1/-	Testing and oral questioning on the topics covered using anatomical preparations, skeleton, skull, dummies, tablets, posters.	Oral questioning. Assessment lists for all forms of the completed assignment
	IWS/ IWS 14 (histology). Midterm examination – II.	To sum up the results of the development of theoretical and practical material.	LO 4 LO 3	1/2	1.The ability to microscopize histological preparations. 2. Ability to draw and describe histological slides and micrographs 3. Ability to answer test questions in Quizizz.	Testing on the Quiz platform. Diagnostics of microphotographs and micropreparations (checklist of assessment of ME).
	IWS/ IWS 14 (physiology). Midterm examination – II.	Summarizing of the learning materials have been studied at the <i>lectures</i> , practical and SIW classes for 9 th – 15 th weeks	LO1	1	Writing questioning by cards, MCQ testing	Assessment of the oral response, checking the MSQ answers
15	Lecture №5 (physiology). Hormonal regulation of physiological functions.	General properties of hormones, classification. Hypothalamic-pituitary-adrenal system. Endocrine glands	LO1	1	Review lecture	Feedback (test and situational tasks)
	Practical class 15 (anatomy). Fascia of the lower limb and the tendons sheath. Topography of the lower limb. Blood supply, venous outflow, innervation. Age features.	Topography of the lower limb. Fascia, synovial bags and tendons sheaths of the lower limb. Blood supply, venous	LO1 LO2 LO5	1	Work in small groups with anatomical preparations, skeleton, dummies, tables,	Oral questioning with a demonstration of the anatomical structures on

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	outflow, innervation. Age features.			tablets. Work on the interactive table Pirogov.	dummies, skeleton, tablets, posters, an interactive anatomical table "Pirogov", solving of MCQs and situational tasks.
Practical class 15 (histology). Topic: Nervous tissue. Nerve fiber. Nerve ending. Synapses.	Identify different types of gliocytes. To identify the nerve endings. Explain the differences in the microscopic structure of myelin and non-myelin nerve fibers.	LO1 LO2 LO5	1	Microscopy, description of histological preparations and photomicrographs, work in small groups.	Checklist for assessment of the practical class.
Practical class 15 (physiology). Physiology of autonomic nervous system. Vegetative (autonomic) synapses, receptors and blockers	The notion of the central and peripheral parts of the sympathetic, parasympathetic, metasympathetic divisions of the autonomic nervous system. The significance of the vegetative innervation. The concept of chemoreceptors, inhibitors of neurotransmitter and blockers of chemoreceptors.	LO1 LO2 LO5	1	Discussion of the main issues of the topic, sketching of the main processes, work in the small groups, solving of cases and MCQ	Oral questioning, checking of understanding the schemes, assessment of the case and MCQ answers
IWST/IWS 15 (anatomy). Topography of the femoral canal and popliteal fossa.	Topography of the femoral canal and popliteal fossa.	LO1 LO2 LO3	1/5	-presentation -assessment of mastery of practical skills	Oral questioning. Assessment lists for all forms of the completed assignment
IWST/IWS 15 (histology). Nerve tissue. Age-related histology, regeneration.	Age-related features of the nervous tissue. Features of neural tissue regeneration.	LO 4 LO 3	1/3	Work in small groups, sketching histological slides, preparing presentations on histological slides, compiling a glossary.	Checklist for assessment of the ISW class on histology basics.

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	IWST/IWS 15 (physiology). Functional asymmetry of the cerebral cortex. Physiology of memory, physiology of sleep.	Interhemispheric asymmetry, as one of the important features of the functioning of the higher parts of the brain: 1) asymmetric localization of the nervous apparatus of the II signal system, 2) dominance of the right hand, as a powerful means of adaptive human behavior. Mechanism of long-term and short-term memory. Neurophysiological mechanisms of sleep. Physiology of sleep and dreams. Modern ideas about the features of human perception. wakefulness. Sleep, its types and phases. Dreams. Physiological basis of hypnotic states.	LO1	1/3	Preparation and presentation in the Power Point	Checking an essay for plagiarism, the presentation
	Preparation and conduct of intermediate control			27		
	Total hours			270		
9.	Teaching Methods					
9.1	Lectures	Introductory, review lecture. Feedback (blitz questions, test and situational tasks) Review lecture in the form of a presentation. Additional video content. For feedback, students are assigned task in the form of control questions. Review lecture. Feedback (test and situational tasks)				
9.2	Practical classes	Work in small groups with anatomical preparations, skeleton, dummies, tables, tablets. Work on the interactive table Pirogov. Students' knowledge is assessed according to individual assessment criteria, depending on the method / form of assessment used during the lesson (oral survey, solving test tasks, solving situational problems), their average score is put in the journal. Testing on the Quizizz platform, work in small groups, description of histological preparations, work with electronic manuals and textbooks, color and electron micrographs, filling in tables, solving situational problems.				

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		Discussion of the main issues of the topic, performing practical work, performing test tasks, solving situational problems				
9.3	<i>IWST/IWS</i>	Consultation on the most difficult issues of the curriculum in the implementation of the IWS, work with educational literature, conducting midterm control, passing the IWS in the form of: -presentation -assessment of mastery of practical skills - assessment of the implementation of the scheme of the course of nerves and arteries, areas of innervation and blood supply. -description of the X-ray Individual protection of the presentation of micropreparations and micrographs. The work of students with educational and additional literature, with literature on electronic media, sketching and describing histological preparations, compiling a glossary.				
9.4	Midterm examination	Oral questioning on the topics. It is planned in the thematic plan of the IWS and is carried out at the IWST Diagnosis of micropreparations and microphotographs, testing on the Quizizz platform. The arithmetic mean score for the test, micropreparation, microphoto is put in the journal. Oral questioning on tickets, testing				
10.	Assessment criteria					
10.1	№ LO	Naming of learning outcomes	Unsatisfiable	Satisfying	Good	Excellent
	LO1	demonstrates knowledge of the subject and tasks of anatomy, histology and physiology, their significance for medicine; -knows the structure and general patterns of functioning of cells, tissues, regulation mechanisms, considered from the standpoint of general physiology and integrative behavioral activity of a person;	does not demonstrate knowledge of the subject and tasks of anatomy, histology and physiology; -does not know the structure and general patterns of functioning of cells, tissues, regulation mechanisms	demonstrates partial knowledge of the subject and tasks of anatomy, histology and physiology, makes gross mistakes; -does not fully know the structure and general patterns of functioning of cells, tissues, regulation mechanisms, makes gross mistakes.	demonstrates knowledge of the subject and tasks of anatomy, histology and physiology, their significance for medicine; -knows the structure and general patterns of functioning of cells, tissues, regulation mechanisms	demonstrates brilliant knowledge of the subject and tasks of anatomy, histology and physiology, their significance for medicine; - perfectly knows the structure and general patterns of functioning of cells, tissues, regulation mechanisms
	LO2	distinguishes, describes, compares the structural features of various cells, tissues, organs of the body and	- does not distinguish, does not describe, does not compare structural features of	Partially describes, compares the structural features of various cells,	distinguishes, describes, compares the structural features of various cells,	perfectly distinguishes, describes, compares the structural features of

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		<p>explains their functions;</p> <ul style="list-style-type: none"> - possesses the skills of conducting laboratory studies of cells and methods of processing the results; 	<p>various cells, tissues, organs of the body and does not explain their functions;</p> <ul style="list-style-type: none"> - does not have the skills to conduct laboratory studies of cells and methods for processing the results 	<p>tissues, organs and explains their functions, makes gross errors;</p> <ul style="list-style-type: none"> - partially owns the skills of laboratory studies of cells; 	<p>tissues, organs of the body and explains their functions, makes unprincipled errors;</p> <ul style="list-style-type: none"> - possesses the skills of conducting laboratory studies of cells and methods of processing the results; 	<p>various cells, tissues, organs of the body and explains their functions;</p> <ul style="list-style-type: none"> - has excellent skills in conducting laboratory studies of cells and methods for processing results;
	LO3	<p>Able to visually and logically present information in the form of a presentation.</p> <ul style="list-style-type: none"> - compares the physiological parameters (constant) of a healthy and diseased organism; - analyzes the information obtained in the course of experimental observations, determines its significance for characterizing the state of the organism. 	<p>Not able to visually and logically present information in the form of a presentation.</p> <ul style="list-style-type: none"> - does not compare the physiological parameters (constants) of a healthy and diseased organism; - does not analyze the information obtained in the course of experimental observations, does not determine its significance for characterizing the state of the body. 	<p>Able to visually and logically present information in the form of a presentation.</p> <ul style="list-style-type: none"> - partially compares the physiological parameters (constants) of a healthy and diseased organism, making gross errors 	<p>Able to visually and logically present information in the form of a presentation.</p> <ul style="list-style-type: none"> - compares the physiological parameters (constants) of a healthy and diseased organism, making unprincipled errors; - analyzes the information obtained in the course of experimental observations, determines its significance for characterizing the state of the organism. 	<p>Able to visually and logically present information in the form of a presentation.</p> <ul style="list-style-type: none"> - ideally compares the physiological parameters (constants) of a healthy and diseased organism; - freely analyzes the information obtained in the course of experimental observations, determines its significance for characterizing the state of the organism.
	LO4	- transfers own	does not transfer	- with	transfers own	freely

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		<p>knowledge and skills to students when conducting educational experiments or explaining theoretical material;</p> <p>- Possesses public speaking skills.</p>	<p>own knowledge and skills to students when conducting educational experiments or explaining theoretical material;</p> <p>- lacks public speaking skills</p>	<p>difficulty conveys his own knowledge and skills to students in conducting educational experiments or explaining theoretical material;</p> <p>- He does not possess the skills of public performance.</p>	<p>knowledge and skills to students when conducting educational experiments or explaining theoretical material;</p> <p>- Possesses public speaking skills.</p>	<p>transfers own knowledge and skills to students when conducting educational experiments or explaining theoretical material;</p> <p>-Excellent in public speaking skills.</p>
	LO5	<p>compares the results of experimental observations with data obtained from modern sources of information; makes conclusions based on the results of laboratory tests;</p> <p>- presents personal judgments at practical classes, student circle meetings, student scientific conferences.</p>	<p>does not compare the results of experimental observations with data obtained from modern sources of information; does not draw conclusions from the results of laboratory tests;</p> <p>- does not represent personal judgments at practical classes, student circle meetings, student scientific conferences.</p>	<p>- compares the results of experimental observations with data obtained from modern sources of information</p>	<p>compares the results of experimental observations with data obtained from modern sources of information;</p> <p>- presents personal judgments at practical classes, student circle meetings, student scientific conferences.</p>	<p>freely compares the results of experimental observations with data obtained from modern sources of information; makes conclusions based on the results of laboratory tests;</p> <p>- freely presents personal judgments at practical classes, student circle meetings, student scientific conferences</p>
Alphabetic grade		Numeric equivalent of points		Percentage	Assessment according to the traditional system	
A		4,0		95-100	Excellent	

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A -	3,67	90-94	Good
B +	3,33	85-89	
B	3,0	80-84	
B -	2,67	75-79	
C +	2,33	70-74	
C	2,0	65-69	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	

Oral answering

Form of control	Grade	Assessment criteria
Oral answering	Excellent Corresponds to points: 95-100 90-94	During the answer, the student does not make any mistakes, is guided in the theories, concepts and directions of the discipline studies and gives them a critical evaluation, and also uses the scientific achievements of other disciplines.
	Good Corresponds to points: 85-89 80-84 75-79 70-74	During answering, a student does not make gross mistakes but make inaccuracies and unprincipled errors corrected by himself is managed to systematize the program material with the help of a teacher.
	Satisfactorily Corresponds to points: 65-69 60-64 50-59	During answering, a student makes fundamental mistakes, is limited only by educational literature indicated by a teacher, faces great difficulties in systematizing the material.
	Unsatisfactory Corresponds to points 0-49	During answering, a student makes gross mistakes, does not work with the main literature on the topic, fails to use the scientific terminology on histology and physiology.

Execution of test tasks (testing)

Form of control	Grade	Assessment criteria
Execution of test tasks (testing)	Excellent Corresponds to points: 95-100 90-94	A student answers correctly 90-100% of the test tasks.
	Good Corresponds to points: 85-89 80-84	A student answers correctly 75-89% of the test tasks.

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	<p>75-79 70-74</p>	
	<p>Satisfactorily Corresponds to points: 65-69 60-64 50-59</p>	A student answers correctly 50-74% of the test tasks.
	<p>Unsatisfactory Corresponds to points 0-49</p>	A student answers correctly less than 50% of the test tasks.

Solving case tasks


Form of control	Grade	Assessment criteria
Solving Case Tasks	<p>Excellent Corresponds to points: 95-100 90-94</p>	A student actively participates in solving situational problems, shows original thinking, profound knowledge of the material, uses scientific advances of other disciplines during a discussion.
	<p>Good Corresponds to points: 85-89 80-84 75-79 70-74</p>	A student actively participates in the work, shows knowledge of a material, makes non-principle inaccuracies or mistakes, corrected by a student himself.
	<p>Satisfactorily Corresponds to points: 65-69 60-64 50-59</p>	During the work in the group, a student is passive, makes inaccuracies and principle mistakes, experiences great difficulties in systematizing a material.
	<p>Unsatisfactory Corresponds to points 0-49</p>	A student does not take part in the work of a group; during answering the questions of a teacher, a student makes principle mistakes and inaccuracies, does not use scientific terminology in answering.

Assessment list

Criteria for assessing the acquisition of practical skills

Full name of student _____

№ п/ п	Criteria of the steps assessment	Level			
		Excellent 90-100	Good 70-89	Satisfactorily 50-69	Unsatisfactory 0-49
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

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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 its description.	18-20	14-17,8	10-13,8	0-9,8
5.	During the description of the organ and its structural elements, the student must say about the age characteristics of the organ	18-20	14-17,8	10-13,8	0-9,8

Maximum score – 100. Total points _____ Teacher signature _____

Assessment list

Assessment criteria for the implementation of the scheme (course of the arteries)

Full name of student _____

№ п/ п	Criteria of the steps assessment	Level			
		Excellent 90-100	Good 70-89	Satisfactory 50-69	Unsatisfactory 0-49
1.	The student must correctly find and sketch the diagram of the paths 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, 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 indicate the areas of blood supply	18-20	14-17,8	10-13,8	0-9,8

Maximum score – 100. Total points _____ Teacher signature _____


Assessment list

Assessment criteria for the implementation of the scheme (course of the nerves)

Full name of student _____

№ п/ п	Criteria of the steps assessment	Level			
		Excellent 90-100	Good 70-89	Satisfactory 50-69	Unsatisfactory 0-49
1.	The student must correctly find and sketch the diagram of the paths of the nerves	18-20	14-17,8	10-13,8	0-9,8
2.	The student must give the full name of the nerves in Latin.	18-20	14-17,8	10-13,8	0-9,8
3	The student must correctly indicate the topography, projection of the nerves	18-20	14-17,8	10-13,8	0-9,8
4.	Must list all branches of nerves	18-20	14-17,8	10-13,8	0-9,8
5.	The student must indicate the areas of innervation	18-20	14-17,8	10-13,8	0-9,8

Maximum score – 100. Total points _____ Teacher signature _____

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Assessment list

Criteria for assessment a presentation in a multimedia format

Full name of student _____

№	Criteria	Level, score in points			
		Excellent 90-100	Good 70-89	Satisfac tory 50-69	Unsatisf actory 0-49
1.	Presence of a title slide with a title, a presentation plan, a sufficient number of slides, a list of used printed and Internet sources.	9-10	7-8,9	5-6,9	0-4,9
2.	A content of a presentation corresponds to a topic and tasks.	9-10	7-8,9	5-6,9	0-4,9
3.	Slides are located in a logical order.	9-10	7-8,9	5-6,9	0-4,9
4.	The style of a material presentation (laconism, clear formulation, coherence).	9-10	7-8,9	5-6,9	0-4,9
5.	Use of modern information sources in sufficient quantity.	9-10	7-8,9	5-6,9	0-4,9
6.	An ability to generalize a material with clear conclusions.	9-10	7-8,9	5-6,9	0-4,9
7.	Level of orientation in a presentation material.	9-10	7-8,9	5-6,9	0-4,9
8.	Ability to communicate clearly, competently, consistently.	9-10	7-8,9	5-6,9	0-4,9
9.	Ability to defend own position and ability to react constructively to criticism.	9-10	7-8,9	5-6,9	0-4,9
10	The quality of design of the slides (color, clarity, etc.).	9-10	7-8,9	5-6,9	0-4,9

Maximum score – 100. Total points _____ Teacher signature _____


Assessment list

Criteria for assessment of the X-ray image

Full name of student _____

№ п/ п	Criteria of the steps assessment	Level			
		Excellent 90-100	Good 70-89	Satisfac tory 50-69	Unsatisf actory 0-49
1.	The student must correctly identify the area of study	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 student must correctly indicate the anatomical structures of the examined bone or joints	22,5-25	17,5-22,25	12,5-17,25	0-12,25
4.	The student must be able to determine age features of the researched organ.	22,5-25	17,5-22,25	12,5-17,25	0-12,25

Maximum score – 100. Total points _____ Teacher signature _____

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Checklist for assessment of practical class on the basics of histology


№	Assessment criteria	Level			
		Excellent	Good	Satisfactory	Unsatisfactory
1	Answers the questions of an individual test according to the program "Quizizz"	40	28	20	0
2	Oral response	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

Oral response


Form of control	Evaluation	Evaluation criteria
Oral response	Excellent Corresponds to scores: 95-100 90-94	The student did not make any mistakes during the answer, was guided by the theories, concepts and directions of the discipline studied, gave them a critical assessment, and also used the scientific achievements of other disciplines.
	Good Corresponds to the scores: 85-89, 80-84 75-79, 70-74	The student did not make gross mistakes during the answer, did not make inaccuracies and not fundamental mistakes corrected by himself, managed to systematize the program material with the help of the teacher.
	Satisfactory Corresponds to the scores: 65-69, 60-64, 50-54	The student made fundamental mistakes during the answer, limited himself only to the educational literature indicated by the teacher, experienced great difficulties in systematizing the material.
	Unsatisfactory Corresponds to scores 0-49	The student made gross mistakes during the answer, did not work out the main literature on the topic of the lesson, failed to use scientific terminology

Performing test tasks (testing)

Form of control	Assessment	Evaluation criteria
Performing test tasks (testing)	Great Corresponds to scores: 95-100 90-94	The student completed 90-100% of the test tasks correctly.
	Well Corresponds to the scores: 85-89, 80-84 75-79, 70-74	The student completed 70-89% of the test tasks correctly.
	Satisfactory Corresponds to the scores: 65-69, 60-64, 50-54	The student completed 50-69% of the test tasks correctly.
	Unsatisfactory	The student completed less than 50% of the test tasks correctly.

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	Corresponds to scores 0-49				
Solving situational problems					
Form of control	Assessment	Evaluation criteria			
Solving situational problems	Great Corresponds to scores: 95-100 90-94	Actively participated in solving situational problems, showed original thinking, showed deep knowledge of the material, used scientific achievements of other disciplines in the discussion.			
	Well Corresponds to the scores: 85-89, 80-84 75-79, 70-74	Actively participated in the work, showed knowledge of the material, admitted unprincipled inaccuracies or errors corrected by the student himself.			
	Satisfactory Corresponds to the scores: 65-69, 60-64, 50-54	When working in a group, he was passive, made inaccuracies and fundamental mistakes, experienced great difficulties in systematizing the material.			
	Unsatisfactory Corresponds to scores 0-49	He did not participate in the work of the group, answering the questions of the teacher, made fundamental mistakes and inaccuracies, did not use scientific terminology in the answers.			
Checklist for ISW on histology basics					
№	Assessment criteria	Level			
		Excellent	Good	Satisfactor y	Unsatisfactory
1	Assessment of presentation of histological microprparations	40	28	20	0
2	Assessment of presentation of microphotographs	40	28	20	0
3	Assessment of compiling a glossary	20	14	10	0
	Total	100	70	50	0
Preparation and protection of histological micro-preparations and microphotographs					
Form of control	Assessment	Evaluation criteria			
Preparation and protection of histological micro-preparations and microphotographs	Great Corresponds to scores: 95-100 90-94	The student prepared presentation on 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 the presence of 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 scores: 85-89, 80-84 75-79, 70-74	The student prepared presentation on 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 the presence of 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.			

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	Satisfactory Corresponds to the scores: 65-69, 60-64, 50-54	The student prepared presentation on 3 micro-preparations and 3 microphotographs on the topic at the appointed time, independently, but carelessly, with a volume of at least 6 meaningful tables, using less than 5 literary sources and the presence of an unfolded 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 scores 0-49	The student did not prepare 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 could not answer questions and did not defend the work.

Compiling a glossary

Form of control	Assessment	Evaluation criteria
Compiling a glossary	Great Corresponds to scores: 95-100 90-94	The student compiled a glossary on the topic at the appointed time, independently, accurately, without errors, with a volume of at least 10 terms, correctly formulated the concepts.
	Well Corresponds to the scores: 85-89, 80-84 75-79, 70-74	The student compiled a glossary on the topic at the appointed time, independently, carefully, with a volume of at least 10 terms, correctly formulated the concepts, made unprincipled mistakes when compiling the glossary.
	Satisfactory Corresponds to the scores: 65-69, 60-64, 50-54	The student compiled a glossary on the topic at the appointed time, independently, but carelessly, with a volume of at least 10 terms, made fundamental mistakes when compiling the glossary.
	Unsatisfactory Corresponds to scores 0-49	The student did not compile a glossary on the topic at the appointed time, or left it at the appointed time, but not independently, carelessly, with a volume of less than 10 terms, on the topic, made gross mistakes when compiling the glossary.

Checklist for midterm control


Evaluation criteria for the description of histological micropreparations

№	Evaluation criteria	Level			
		excellent 90-100	good 70-89	satisfactory 50-69	unsatisfactory 49 -0
1	Identifies a micropreparation under a microscope	10,0	7,0	5,0	0
2	Names the staining of the micropreparation	10,0	7,0	5,0	0
3	Gives a complete description of the micropreparation	30,0	21,0	15,0	0
4	Names the function of of the micropreparation	10,0	7,0	5,0	0
5	Performs a sketch of a micropreparation	40,0	28,0	20,0	0
	Total	100,0	70,0	50,0	0

Checklist for midterm control

Evaluation criteria for the description of histological microphotographs


	Evaluation criteria	Level
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№		excellent 90-100	good 70-89	satisfactory 50-69	unsatisfactory 49 -0
1	Defines microphotography	10,0	7,0	5,0	0
2	Describes microphotography	40,0	28,0	20,0	0
3	Names its function	10,0	7,0	5,0	0
4	Draws a micrograph	40,0	28,0	20,0	0
	Total	100	70	50	0

Physiology			
Evaluation by Letter System	Equivalent of Points	Percentage	Evaluation According to the Traditional System
A	4,0	95-100%	excellent
A-	3,67	90-94%	
B+	3,33	85-89%	good
B	3,0	80-84%	
B-	2,67	75-79%	
C+	2,33	70-74%	
C	2,0	65-69%	satisfactorily
C-	1,67	60-64%	
D+	1,33	55-59%	
Д-	1,0	50-54%	
F _x	0,5	25-49%	unsatisfactory
F	0	0-24%	


Oral response		
Form of control	Evaluation	Criteria for evaluation
Discussion of the main points of the theme	Excellent Corresponds to points: 95-100 90-94	During the answer, the student does not make any mistakes, is guided in the theories, concepts and directions of the discipline studied, gives them a critical evaluation, and uses the scientific achievements of other disciplines.
	Good Corresponds to points: 85-89 80-84 75-79 70-74	During answering, a student does not make gross mistakes but makes inaccuracies and unprincipled errors corrected by himself systematizes the program material with the help of a teacher.
	Satisfactorily Corresponds to points: 65-69 60-64 50-54	During answering, a student makes fundamental mistakes, is limited only by educational literature indicated by a teacher, faces great difficulties in systematizing the material.

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	Unsatisfactory Corresponds to points 25-49 0-24	During answering, a student makes gross mistakes, does not work with the main literature on the topic, fails to use the scientific terminology on histology and physiology.
Practical work, discussion of research results		
Form of Control	Evaluation	Criteria for Evaluation
Fulfilment of the practical work	Excellent Corresponds to points: 95-100 90-94	A student fulfils a practical work in time and without any mistakes and provides a report on it, takes an active part in a discussion of the research results, makes sensible conclusions, shows original thinking at the same time.
	Good Corresponds to points: 85-89 80-84 75-79 70-74	A student carries out practical work on time and reports on it, making unprincipled errors, taking an active part in the discussion of the study results.
	Satisfactorily Corresponds to points: 65-69 60-64 50-54	A student carries out practical work on time and reports on it, having made fundamental mistakes, during a discussion does not show activity, needs the help of a teacher.
	Unsatisfactory Corresponds to points 25-49 0-24	A student does not timely report on practical work, makes gross mistakes, does not complete all the practical work envisaged by the program, does not take part in a discussion of results.
MCQ testing		
Form of control	Evaluation	Criteria for Evaluation
MCQ Testing	Excellent Corresponds to points: 95-100 90-94	A student answers correctly 90-100% of the MCQ tasks.
	Good Corresponds to points: 85-89 80-84 75-79 70-74	A student answers correctly 75-89% of the MCQ tasks.

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	<p>Satisfactorily Corresponds to points: 65-69 60-64 50-54</p>	A student answers correctly 50-74% of the MCQ tasks.
	<p>Unsatisfactory Corresponds to points 25-49 0-24</p>	A student answers correctly less than 50% of the MCQ tasks.
Solving Case Tasks		
Form of Control	Evaluation	Criteria for Evaluation
Solving Case Tasks	<p>Excellent Corresponds to points: 95-100 90-94</p>	A student actively participates in solving situational problems, shows original thinking, profound knowledge of the material, uses scientific advances of other disciplines during a discussion.
	<p>Good Corresponds to points: 85-89 80-84 75-79 70-74</p>	A student actively participates in the work, shows knowledge of a material, makes non-principle inaccuracies or mistakes, corrected by a student himself.
	<p>Satisfactorily Corresponds to points: 65-69 60-64 50-54</p>	During the work in the group, a student is passive, makes inaccuracies and principle mistakes, experiences great difficulties in systematizing a material.
Preparation and Presentation of a File in Power Point Format		
Form of Control	Evaluation	Criteria for Evaluation
Preparation and Presentation of a File in Power Point Format	<p>Excellent Corresponds to points: 95-100 90-94</p>	A student prepares a presentation on a topic by an appointed time, independently, accurately, with a minimum of 20 laconic and informative slides, using at least 5 information sources; a presentation contains a detailed plan, schemed, tables and figures corresponding to a topic; during a defence of a presentation, a student shows a profound knowledge of the subject, accurately answers all the questions asked.
	<p>Good Corresponds to points: 85-89 80-84</p>	A student prepares a presentation on a topic by an appointed time, independently, accurately, with a minimum of 20 laconic and informative slides, using at least 5 information sources; a presentation contains a detailed plan, schemes, tables and figures corresponding to a topic; during a defence of a presentation, a

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	75-79 70-74	student shows a good knowledge of a subject; while answering questions, a student does not make principal mistakes.			
	Satisfactorily Corresponds to points: 65-69 60-64 50-54	A student prepares a presentation on a topic by an appointed time, independently but inaccurately, with a minimum of 20 non-informative slides, using fewer than 5 information sources; a presentation contains an undeveloped plan, an insufficient number of schemes, tables and drawings corresponding to the topic; during a defence of a presentation, a student uncertainly answers questions, makes principal mistakes.			
	Unsatisfactory Corresponds to points 25-49 0-24	A student does not prepare a presentation on a topic by an appointed time, or prepares it timely, but non-independently, inaccurately, with a volume of fewer than 20 non-informative slides, without indicating information sources; a presentation does not contain a plan; while answering questions, a student makes gross mistakes or could not answer questions and does not defend a presentation.			
CHECK LIST					
FULL NAME of the student _____					
<i>Criteria for evaluating a presentation in a multimedia format</i>					
№	Criteria	Level			
		excellent 90-100	good 70-89	satis 50-69	unsatis 49 -0
1.	Presence of a title slide with a title, a presentation plan, a sufficient number of slides, a list of used printed and Internet sources.	10	7	5	0
2.	A content of a presentation corresponds to a topic and tasks.	10	7	5	0
3.	Slides are located in a logical order.	10	7	5	0
4.	The style of a material presentation (laconism, clear formulation, coherence).	10	7	5	0
5.	Use of modern information sources to sufficient extent.	10	7	5	0
6.	An ability to generalize a material with clear conclusions.	10	7	5	0
7.	Level of orientation in a presentation material.	10	7	5	0
8.	Ability to communicate clearly, competently, consistently.	10	7	5	0
9.	Ability to defend own position and ability to react constructively to criticism.	10	7	5	0
10.	The quality of design of the slides (colour, clarity, etc.).	10	7	5	0
	Total	100	70	50	0


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Teacher's signature _____		
The average score for a midterm control.		
Form of Control	Evaluation	Criteria for Evaluation
Midterm in the form of written response and MCQ testing	Excellent Corresponds to points: 95-100 90-94	During answering, a student does not make any mistakes or inaccuracies. A student orients in theories, concepts and branches of the studied discipline and gives them a critical evaluation, using the scientific achievements of other disciplines. 90-100% of correct answers by tests.
	Good Corresponds to points: 85-89 80-84 75-79 70-74	During answering, a student does not make gross mistakes, makes non-principle inaccuracies or principle mistakes corrected by a student self; a student manages to systematize a program material with the help of a teacher. 70-89% of correct answers by tests.
	Satisfactorily Corresponds to points: 65-69 60-64 50-54	During answering, a student makes inaccuracies and non-principle mistakes; the answer is limited only by the educational literature indicated by a teacher; a student experiences great difficulties in systematising the material. 50-69 of correct answers by tests.
	Unsatisfactory Corresponds to points 25-49 0-24	During answering, a student makes principle mistakes, does not work with the basic literature on a topic of a lesson; does not know how to use the scientific terminology of the discipline; answers with gross stylistic and logical mistakes. There are less than 50% of correct answers by tests.
Final control during intermediate attestation		
Form of Control	Evaluation	Criteria for Evaluation
Objective structured practical examination (OSPE)	Excellent Corresponds to points: 95-100 90-94	A student correctly completes the randomly chosen tasks, shows a deep knowledge of the discipline
	Good Corresponds to points: 85-89 80-84 75-79 70-74	A student correctly completes the randomly chosen tasks, shows good knowledge of the discipline
	Satisfactorily Corresponds to points: 65-69 60-64	A student completes correctly the randomly chosen tasks, resorting to the help of a teacher, shows satisfactory knowledge of the discipline.


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	50-54	
	Unsatisfactory Corresponds to points 0-49	A student incorrectly completes or doesn't complete the randomly chosen tasks at all, shows unsatisfactory knowledge of the discipline
MCQ testing	Excellent Corresponds to points: 95-100 90-94	A student fulfils correctly 90-100% of the MCQ tasks.
	Good Corresponds to points: 85-89 80-84 75-79 70-74	A student fulfils correctly 70-89% of the MCQ tasks.
	Satisfactorily Corresponds to points: 65-69 60-64 50-54	A student fulfils correctly 50-69% of the MCQ tasks.
	Unsatisfactory Corresponds to points 25-49 0-24	A student fulfils correctly less than 50% of the MCQ tasks.

11.	Learning resources	
<p>Electronic resources Repository SKMA http://lib.ukma.kz/repository/</p> <p>1. Republican interuniversity electronic library http://rmebrk.kz/</p> <p>2. Student advisor http://www.studmedlib.ru/</p> <p>3. Ашық кітапхана https:// kitap.kz/</p>		
<p>Electronic textbooks</p> <p>http://www.udel.edu/biology/Wags/histopage/histopage.htm http://www.udel.edu/biology/Wags/histopage/histopage.htm http://www.udel.edu/biology/Wags/histopage/histopage.htm</p> <p>«MICROSCOPIC ANATOMY» - University of Delaware. Collections of microscopic and ultramicroscopic images of cells, tissues and organs, lecture presentations, animated and 3D models of cells and tissues are available.)</p> <p>http://www.kumc.edu/instruction/medicine/anatomy/histoweb/</p> <p>«JAYDOC HISTOWEB» - University of Kansas Medical Center, Department of Anatomy and Cell Biology. Contains a collection of histological preparations with the ability to view at different magnifications (eng.)</p> <p>http://www.uni-ainz.de/FB/Medizin/Anatomie/workshop/englWelcome.html</p>		

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<p>«ELECTRON MICROSCOPIC ATLAS in the Internet» - University Mainz, Germany. The collection of electronic microphotographs of organs, tissues and cells is presented.) http://astro.temple.edu/~sodicm/labs/index.htm «HISTOLOGYWEBLABS»- TempleUniversity. Available training materials (text, photos) on histology in the form of ppt presentations (eng.) http://www.meddean.luc.edu/lumen/meded/histo/frames/histo_frames.html «ZOOMIFIED HISTOLOGY» - LoyolaUniversity. Images of micro-preparations of tissues and organs with a description of them, as well as tests to test the ability to recognize histological structures (eng.) http://histologyatlas.wisc.edu/ «HISTOLOGYWEBSITE RESOURCE» - University of Wisconsin. The site contains images of micro-preparations of tissues and organs, video presentations, as well as links to additional Web resources on histology (eng.) https://histo.life.illinois.edu/histo/atlas/index.php «INTERNET ATLAS OF HISTOLOGY» - College of Medicine, University of Illinois at Urbana-Champaign. Microscopic and ultramicroscopic images of tissues and organs are available.) http://meyershistology.moodle.com.au/ «MEYER'S HISTOLOGY» - UNIVERSITY OF WESTERN AUSTRALIA. AN ONLINE COURSE IN HISTOLOGY IS AVAILABLE AFTER REGISTRATION.) http://www.chups.jussieu.fr/polys/histo/histoP2/index.html «HISTOLOGIE : ORGANES, SYSTÈMES ET APPAREILS» - FACULTÉ DE MÉDECINE PIERRE ET MARIE CURIE. EDUCATIONAL MATERIALS (TEXT, DRAWINGS, MICROPHOTO) ON PRIVATE HISTOLOGY ARE PRESENTED (FRENCH.) http://www.histology-world.com/ «HISTOLOGY-WORLD!» THE SITE CONTAINS EXTENSIVE EDUCATIONAL MATERIAL ON HISTOLOGY: PICTURES OF MICRO-PREPARATIONS WITH COMMENTS, INTERACTIVE TESTING, GAMES, CROSSWORDS, AND SO ON. (ENG.) http://www.visualhistology.com/ "VISUALHISTOLOGY" Text, atlas, presentations and other materials on histology are available.)</p>	
<p>Laboratory physical resources Skeleton, set of bones, dummies, torso, electronic tablets, Pirogov interactive anatomical table, Pirogov anatomical panel Microscopes, a set of micropreparations, an atlas of microphotographs. Models, Sivtsev's table, Forster's perimeter, electrocardiograph, tonometer, phonendoscope, Saly's hemometer.</p>	
<p>Literature on Anatomy Main: 1. Netter F. H. Atlas of Human Anatomy. Saunders / Elsevier, 2014 2. Drake R. L., Vogl A. W., Mitchell A. W. M. Gray's Anatomy for Students Churchill Livingstone, Elsevier, 2014 3. Chaurasia's B.D. Human Anatomy : Textbook in 4 vol. Vol. 2 : Lower limb, Abdomen and pelvis / B. D. Chaurasia's. - 7th ed. - [s. l.] : CBS Publishers & Distributors Pvt Ltd, 2016. - 498 4. Chaurasia's B.D. Human Anatomy : Textbook in 4 vol. Vol. 1 : Upper limb and thorax / B. D. Chaurasia's. - 7th ed. - [s. l.] : CBS Publishers & Distributors Pvt Ltd, 2016. - 328 p Additional: 5. Chaurasia's B.D. Human Anatomy : Textbook in 4 vol. Vol. 4 : Brain-neuroanatomy / B. D. Chaurasia's. - 6 th ed. - [s. l.] : CBS Publishers & Distributors Pvt Ltd, 2016. - 206 p Chaurasia's B.D. Human Anatomy : Textbook in 4 vol. Vol. 3 : Head and neck / B. D. Chaurasia's. - 7th ed. - [s. l.] : CBS Publishers & Distributors Pvt Ltd, 2016. - 338 p Literature on Histology</p>	

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main:

1. Textbook of Histology, 4th Edition. Leslie P. Gartner. Elsevier Health Sciences. 2016. 672 pp.
2. Michael H. Ross, Wojciech Pawlina. Histology. A Text and Atlas. 6th edition. 2011.
3. Bobrysheva A.I., Kashchenko S.A. Histology. Cytology. Embryology. - Lugansk: "Knowledge", 2011
4. Sadler, T.W. Langman's Medical Embryology. T.W. Sadler. 13th edition. — Wolters Kluwer. 2015. 423 pp.
5. The Developing Human: Clinically Oriented Embryology Moore K. L., Persaud T. V. N., Torchia M. G.; Saunders / Elsevier 2013

supplementary:

1. Basic histology. Texts and atlases, published in Northern America, 2013, 512 pp.
2. Functional histology. Texts and colour atlas. Churchill Livingstone, International edition. Sidney. Toronto. 2012. 413 pp.

Literature on Physiology

main:

- Hall, John E. Guyton and Hall textbook of medical physiology: textbook / John E. Hall. - 13th ed. - Philadelphia : Elsevier, 2016. - 1145 p.
- Babsky, Y. B. Human physiology. Volum 1.: textbook / Y. B. Babsky, Y. B. Babsky. - Almaty : "Evero", 2017. - 308 p
- Babsky, Y. B. Human physiology. Volum 2.: textbook / Y. B. Babsky, U. B. Babsky. - Almaty : "Evero", 2017. - 296 p.
- Babsky, Y. B. Human physiology. Volum 1.: textbook / Y. B. Babsky, Y. B. Babsky. - Almaty : "Evero", 2017. - 308
5. TannerThies, Roger Physiology- An Illustrated Review: textbook / Roger TannerThies. - New York : Stuttgart, 2013. - 329 p

supplementary:


Smagulov , N. K.: textbook / N. K. Smagulov , N. M. Kharissova ; Ministry of public health of Republic of Kazakhstan; Karaganda state medical university. - Almaty : LLP "Evero", 2013.

12. Discipline policy

- This program is designed to provide students with the necessary knowledge and skills in the discipline, the achievement of learning outcomes in a distance learning environment
- Tasks on the topic are placed in the "Assignment" module for the attached academic group (stream).
- Module "Assignment" AIS Platonus is the main platform for distance learning and placement of all educational teaching materials.


Requirements for students:

- Students must complete tasks daily according to the schedule of lectures, practical classes and IWST classes;
- Students should participate in discussions, complete individual and group assignments;
- Students should keep track of deadlines for assignments.
- not be late for classes;
- do not miss classes without good reason;
- have anatomical gloves, tweezers and a scalpel;
- be active during practical training;
- be able to work in a team;
- timely, according to the schedule, carry out and hand over the IWST;
- do not engage in extraneous matters during classes;
- be tolerant, open and friendly towards fellow students and teachers;
- comply with ethical standards of behavior when working with anatomical preparations and organs of the human body;



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- takes good care of the property of the department;
 - timely work off missed classes for good reasons;
 - observe safety precautions in the classroom.
13. During lectures / practical classes / IWS, students are prohibited from:
1. use mobile devices / gadgets;
 2. leave the classroom / classroom (leave the workplace at the clinical / industrial base) without the permission of the teacher.
- Dress code requirements**
The student is obliged:
1. have a clean, ironed medical gown, cap / cap;
 2. have a neat hairstyle, short-cut nails; (for girls: bright makeup and bright nail polish are not allowed).
- Penalties:**
1. In case of a single violation of the discipline policy, the student receives an oral warning from the teacher.
 2. In case of repeated violations of the discipline policy, the student provides an explanatory note addressed to the head of the department.
 3. In case of a 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 appear at the midterm control without a good reason and received an unsatisfactory mark for one of the types of controls (ME1, ME2, avIC) is not allowed to take the discipline exam; A student who does not appear at the midterm control for a good reason, immediately after starting studies, with the permission of the dean's office, receives a working sheet.
 - For one skipping of the lecture, for no good reason, the penalty score is 1.0 points and is subtracted from the grades of midterm control,
 - For one skipping of the IWS, for no good reason, the penalty point is - 2.0 points and is subtracted from the grades of the IWS
 - Reward points are taken into account according to the policy of the department: Reward points are added to the assessment of midterm control. For active participation in the work of the Student's scientific section and seminars in each discipline, the student is assigned an Reward score of 5 to 10.
- If a student does not score 50% of the intermediate control (i.e. 30 points), then he/she is not allowed to pass the final control (examination).

13.	Academic policy based on the moral and ethical values of the academy
	www.ukma.kz Regulations and Rules of SKMA. Academic policy.
	II.4 Student Code of Honor
	II.10. Organization of the educational process
	II.12. Grading Policy
	Final control - students who have fully mastered the discipline program and who have gained an admission rating are allowed to the exam.
	The final score is calculated automatically based on the average score of the current control, the average score of the midterm controls and the score of the final control:
	Tolerance rating (60%) = average score of midterm controls (20%) + average score of current control (40%)
	Average score of midterm controls = $ME1 + ME2 / 2$
	verage evaluation of intermediate control = mean of current grades taking into account the average score for the ISW and penalty points.
	Final grade (100%) = $avME \times 0.2 + avIC \times 0.4 + FE \times 0.4$ or
	Final grade (100%)= Access Rating (60%) + Final Examination (40%)
	<u>Example of calculating the final score of a student:</u>
	Penalty points:
	Penalty score (PS) for 2 missed lectures= $1.0 \times 2 = 2.0$

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<p style="text-align: right;">for 1 missed IWS with teacher= 1.0*2=2.0</p> <p> ME1 – 80 points ME 2 – 90 points $avME = \frac{(80-2)+90}{2} = 84$ points </p> <p>Average rating of intermediate control (avIC) (practical and laboratory lessons) is equal to 80 points.</p> <p> ISW 1 – 75 points ISW 2 – 85 points ISW N... – number of ISW $avIWS = \frac{75 + 85 + N...}{2 + N...} = 80$ points </p> <p>Intermediate control adjusted to avIWS and penalty points:</p> <p> $ICASP^* = \frac{avIR + avIWS}{2} - PS = \frac{80+80}{2} - 2.0 = 79.0$ </p> <p>Access Rating (60%)=avME x 0.2 + ICASP *0.4 = 84 * 0.2 + 79.0 * 0,4 = 16.8+ 31.6 =48.4 points</p> <p>Final examination (40%), for example, a student correctly answered 45 questions from 50 (90%), $90 \times 0.4 = 36$ points final grade (100%) =</p> <p> 1) Access Rating (60%) + FE (40%) = 48,4 + 36 = 84,4 points 2) avME x 0.2 + avICASP x 0.4 + FE x 0.4=84 x 0,2 + 79,0 x 0,4 + 90 x 0.4=16.8+31,6+36=84,4points </p> <p> avME – average assessment of midterm examinations avIC– average evaluation of the intermediate control FE – evaluation of final examination ME 1 – midterm examination 1 ME 2 – midterm examination 2 ICASP – intermediate rating adjusted to avIWS and penalty points PS – penalty score </p> <p><i>DET uses online proctoring - a system of identity verification and confirmation of the results of passing online exams.</i></p>	
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14. Approval and revision			
Date of approval at the departments	Protocol № №5 26.12.22 №5 02.12.22 №49 13.12.22	Full name of the head of the department Tanabayev B.D. Sadykova A.Sh. Zhakipbekova G.S.	
Date of approval by CEP	Protocol № №5 02.12.22	Full name of the chairman of the CEP Sadykova A.Sh.	

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Protocol of coordination of the Working program of the module (Syllabus) with other disciplines for 2022-2023

Disciplines of coordination	Proposals for changes in the proportions of the material, the order of presentation, etc.	Numbers of protocols and dates of meetings of coordinating departments
1	2	3
Prerequisites: Molecular biology and medical genetics.	Eukaryotic cell. Surface apparatus of cells. Plasma membrane. Transport of substances across membranes. Structure and function of ion channels and pumps. Adhesive function of membranes. Transmission of signals in the cell. Characteristics of signaling molecules. Cell cycle. Molecular mechanisms of apoptosis and oncogenesis. Structure and functions of cellular non-membrane organelles and nuclei.	Department of Molecular Biology and Biochemistry. Protocol № <u>6</u> <u>14.12.2022.</u>
Postrequisites: Morphology and physiology.	Cytology. Cell and non-cellular structures. Plasma membrane. Functions of biological membranes. Ion channels. Nucleus. Cell division. Cell cycle. Cell response to injury. Morphological signs of apoptosis and necrosis.	Department of Normal Anatomy. Department of Pathological Anatomy and Histology. Department of Normal and Pathological Physiology. Protocol № <u>5</u> <u>26.12.2022.</u>

№5 26.12.22
№6 13.12.22

Head of the Department of
Molecular Biology and Biochemistry, professor Esirkepov M.M.

М. М. Е

Heads of the Departments of:
Normal Anatomy, acting professor Tanabayev B.D.

Танabayev B.D.

Pathological Anatomy and Histology, acting professor Sadykova A.Sh.

Садyкова A.Sh.

Normal and Pathological Physiology, acting professor Zhakipbekova G.S.

Жакyпбекoва G.S.