Federal State Budgetary Educational Institution of Higher Education
"Privolzhsky Research Medical University"
Ministry of Health of the Russian Federation

APPROVED
Vice-Rector for Academic Affairs
E.S. Bogomolova
31 August 2021

WORKING PROGRAM

Name of the academic discipline: **HUMAN ANATOMY – ANATOMY OF HEAD AND NECK**

Specialty: **31.05.03 DENTISTRY**

Qualification: **DENTIST**

Department: **HUMAN ANATOMY**

Mode of study: **FULL-TIME**

Labor intensity of the academic discipline: **360 academic hours**

Nizhny Novgorod
2021

The working program has been developed in accordance with the Federal State Educational Standard for specialty 31.05.03 DENTISTRY approved by Order of the Ministry of Science and Higher Education of the Russian Federation No. 988 of August 12, 2020.

Developers of the working program:
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The program was reviewed and approved at the department meeting (protocol No. 4, 21.04.2021)
Head of the Human Anatomy Department,
M.D., PhD., professor _____ Stelnikova I.G.
(signature)

21.04.2021

AGREED
Deputy Head of EMA ph.d. of biology _____ Lovtsova L.V.
(signature)

21.04.2021

1. The purpose and objectives of mastering the academic discipline HUMAN ANATOMY – ANATOMY OF HEAD AND NECK (hereinafter – the discipline):

1.1. The purpose of mastering the discipline is participation in forming the GPC-8.

1.2. Tasks of the discipline:

1. Acquisition by students of theoretical knowledge of morphology of the musculoskeletal system, splanchnology, angiology, neurology, estesiology, endocrine apparatus and organs of the immune system.

2. Mastering practical skills of working with anatomical preparations (bones, wet preparations, plastinated preparations, etc.), with cadaveric material.

3. Teaching students to take care of anatomical material as the remains of the human body.

4. Formation of skills for studying scientific literature and official statistical reviews.

5. Formation of initial skills of logical medical thinking.

6. Formation of communication skills within the student body and with teachers, as well as relationships with others.

1.3. Requirements to the deliverables of mastering the discipline

As a result of completing the discipline, the student should

Know:

• safety regulations and work in biological laboratories and anatomical rooms,

• structure, topography and development of cells, tissues, organs and systems of the body in interaction with their function in norm and pathology,

• anatomical and physiological, age-sexual and individual features of the structure and development of a healthy organism,

• general patterns of origin and development of life, human ontogenesis

Be able to:

• use educational, scientific, popular science literature, the Internet for professional activities,

• palpate the main bone landmarks on a person, outline the topographic contours of organs and the main vascular and nerve trunks,

• explain the nature of deviations in the course of development that can lead to the formation of variants of anomalies and defects (vices)

Possess:

• medical-anatomical terminology,

• the simplest medical instruments (forceps)

2. Position of the academic discipline in the structure of the General Educational Program of Higher Education (GEP HE) of the organization.

2.1. The discipline HUMAN ANATOMY – ANATOMY OF HEAD AND NECK refers to the core part of Block 1 of GEP HE (60).

The discipline is taught in the first, second, third semester/ 1-2 year of study.

2.2. The following knowledge, skills and abilities formed by previous academic disciplines are required for mastering the discipline:

1. Knowledge of the basic laws of physics, physical phenomena and processes; characteristics of the impact of physical factors on the body; physical phenomena underlying the processes occurring in the human body (physics).

2. Knowledge of chemical phenomena and processes; basic chemical laws and concepts, Knowledge of the chemical essence of the processes occurring in the human body at the molecular and cellular levels, ability to use chemical equipment (chemistry).

3. Knowledge of the general laws of the origin and development of life; anthropogenesis and ontogenesis of man; laws of genetics, general laws of heredity and variability in individual development (biology).

2.3. Mastering the discipline is required for forming the following knowledge, skills and abilities for subsequent academic disciplines:

1. Knowledge of the chemical and biological essence of the processes occurring in the human body at the molecular and cellular levels; knowledge of the structure, topography and development of organs and systems (for pathological anatomy - pathological anatomy of head and neck)

2. 2. Knowledge of the levels of organization of living systems and general properties of a living organism; general physical and physiological properties of biological fluids and tissues; general physiological patterns underlying the processes occurring in the human body; physiological processes occurring in human organs and systems; mechanisms of regulation of the body under the influence of factors of internal and external environment (for normal physiology - normal physiology of maxillofacial region, pathological physiology - pathological physiology of head and neck).

3. Knowledge of general physiological patterns underlying the processes of vital activity of the body, the ability to apply medical and physiological terms; analyze the functional state of various cellular, tissue and organ structures; interpret the results of the most common methods of laboratory and functional diagnostics to identify pathological processes in human organs and systems (for propaedeutic and prevention of dental diseases, therapeutic dentistry; orthopedic dentistry; topographic anatomy and operative surgery; surgical dentistry; maxillofacial surgery.

3. Deliverables of mastering the academic discipline and metrics of competence acquisition

Mastering the discipline aims at acquiring the following general professional competency (GPC)

№	Competence code	The content of the competence (or its part)	Code and name of the competence acquisition metric	As a result of mastering the discipline, the students should:		
				know	be able to	possess
1.	GPC-8	Able to use basic biological, physical-chemical, mathematical terms and methods to solve professional problems	GPC-8.1 Knows: basic biological, physical-chemical, chemical, mathematical terms and methods using in medicine GPC-8.2 Able to: evaluate data of the basic biological, physical-chemical, mathematical methods to solve professional problems GPC-8.3 Has practical experience in: assessment of the basic biological, physical-chemical, mathematical methods to solve professional	safety regulations and work in biological laboratories and anatomical rooms, structure, topography and development of cells, tissues, organs and systems of the body in interaction with their function in norm and pathology, anatomical and physiological, age-	use educational, scientific, popular science literature, the Internet for professional activities, palpate the main bone landmarks on a person, outline the topographic contours of organs and the main vascular and nerve trunks, explain the	medical-anatomical terminology, the simplest medical instruments (forceps)

			problems	sexual and individual features of the structure and development of a healthy organism, general patterns of origin and development of life, human ontogenesis	nature of deviations in the course of development that can lead to the formation of variants of anomalies and defects (vices)	

4. Sections of the academic discipline and competencies that are formed when mastering them

№	Competence code	Section name of the discipline	The content of the section in teaching units
1	GPC-8	Introduction	The content of the subject. Human development. The general structure of human body. The position of man in nature. Anatomical terminology.
2	GPC-8	Locomotor apparatus	Bones of the trunk and limbs. Joints of bones. Muscles of the trunk, limbs. Topography of muscles and fascia of the trunk, limbs.
3	GPC-8	Splanchnology	Organs of the digestive (alimentary) system. Organs of the respiratory system. Organs of the genital systems. Organs of urinary system.
4	GPC-8	Immune system organs and lymph outflow pathways	General patterns of structure. Primary and secondary organs of the immune system. Lymphatic capillaries, vessels, trunks and ducts. Lymph nodes: structure and topography.
5	GPC-8	Endocrine glands	Pituitary gland, epiphysis, thyroid gland, parathyroid glands, adrenal glands, endocrine part of the pancreas and genital organs.
6	GPC-8	Cardiovascular system	Heart. Arteries of the lesser circle of blood circulation. Arteries of the greater circle: arteries of the trunk and extremities. Veins.
7	GPC-8	Neurology	The general structure. The central nervous system. Spinal cord. Brain: the telencephalon, the hemispheres. The brain stem. The diencephalon. The midbrain. The isthmus of the rhombencephalon. The metencephalon. Pons, cerebellum, medulla oblongata, rhomboid fossa. The pathways of the central nervous system. The meninges of the spinal cord and brain. Peripheral nervous system. Spinal nerves. Brachial, lumbar and sacral plexuses..
8	GPC-8	Sense organs	Eye, ear, organs of smell and taste. Skin.
9	GPC-8	Locomotor apparatus of head and neck	Cranium. Bones of neurocranium and viscerocranium. Topography of the cranium. Joints of vertebral column and cranium. The joints of the bones of the skull. Muscles of the head and neck. Topography of muscles and fascia of the head, neck.
10	GPC-8	Anatomy and topography of the	The oral cavity: oral vestibule, oral cavity proper. The hard palate and soft palate. The tongue. The pharynx. Salivary glands. The deciduous

		oral cavity	and permanent teeth. X-ray anatomy.
11	GPC-8	Vessels of head and neck. Lymph outflow of head and neck	Arteries of the head and neck. Veins of the head and neck. Lymph outflow of head and neck.
12	GPC-8	Nerves of head and neck	Cranial nerves. Cervical plexus. Autonomous nervous system: sympathetic and parasympathetic parts.

5. Volume of the academic discipline and types of academic work

Type of educational work	Labor intensity		Labor intensity (AH) in semesters		
	volume in credit units (CU)	volume in academic hours (AH)	1	2	3
Classroom work, including	5,39	194	64	66	64
Lectures (L)	1,17	42	16	14	12
Laboratory practicum (LP)*					
Practicals (P)	4,22	152	48	52	52
Seminars (S)					
Student's individual work (SIW)	3,61	130	44	42	44
Mid-term assessment					
exam	1	36			36
TOTAL LABOR INTENSITY	10	360	108	108	144

6. Content of the academic discipline

6.1. Sections of the discipline and types of academic work

№	Name of the section of the academic discipline	Types of academic work* (in AH)					
		L	LP	P	S	SIW	total
1	Introduction	2					2
2	Locomotor apparatus	4		24		22	50
3	Splanchnology	8		21		14	43
4	Immune system organs and lymph outflow pathways	2		3		8	13
5	Endocrine glands	2		3		6	11
6	Cardiovascular system	4		18		12	34
7	Neurology	4		25		16	45
8	Sense organs	4		6		8	18
9	Locomotor apparatus of head and neck	4		21		14	39
10	Anatomy and topography of the oral cavity	2		9		8	19
11	Vessels of head and neck. Lymph outflow of head and neck	2		9		12	23
12	Nerves of head and neck	4		13		10	17
13	Exam						36
	TOTAL	42		152		130	360

* - L – lectures; LP – laboratory practicum; P – practicals; S – seminars; SIW – student's individual work.

6.2. Thematic schedule of educational work types:

6.2.1 Thematic schedule of lectures

№	Name of lecture topics	Volume in AH		
		1 semester	2 semester	3 semester
1	Introduction to human anatomy. The subject and tasks of anatomy. The importance of anatomy in the healthcare system. General characteristics of tissues. Stages of ontogenesis.	2		
2	A hard skeleton. Bony tissue. Bone as an organ. General arthrosyndesmology. The vertebral column.	2		
3	The thoracic cage. The pelvis as a whole. Diameters. Muscles as active part of locomotor apparatus	2		
4	Introduction to splanchnology. The peculiarities of digestive (alimentary) organs.	2		
5	The organs of the respiratory system.	2		
6	The peculiarities of urinary organs.	2		
7	The peculiarities of genital organs	2		
8	The lymphoid system. Lymph outflow from organs. The immune system.	2		
9	The endocrine system		2	
10	The cardiovascular system. Heart. Morphological peculiarities of the arterial system.		2	
11	Morphological peculiarities of the venous system		2	
12	Organization of the nervous system. Peculiarities of spinal cord.		2	
13	The brain stem. The telencephalon, organization of hemispheres.		2	
14	The organ of hearing. Vestibular analyzer. Auditory analyzer.		2	
15	The organ of vision. Visual analyzer. Accessory structures.		2	
16	The cranium as a whole. Topography.			2
17	Topography of muscles and fascia of the head and neck.			2
18	The oral cavity: oral vestibule, oral cavity proper, hard palate and soft palate. Salivary glands.			2
19	Organization of the venous outflow from the head and neck.			2
20	Cranial nerves. Special sensitive nerves. Analyzers. Motor nerves			2
21	Cranial nerves. Mixed nerves. Autonomous innervation of the head and neck.			2
	TOTAL (total - AH)	16	14	12
	ADDITIONAL LECTURES			
	Weak places of abdominal cavity.	2		
	Topography of upper limbs. Topography of lower limbs.	2		
	Ontogenesis of digestive tube. Vices (defects).	4		

	Ontogenesis of respiratory tube. Vices (defects). Ontogenesis of urogenital organs. Vices (defects).			
	The pathways of the central nervous system.		2	
	Vegetative nervous system		2	
	Ontogenesis of cardiovascular system. Vices (defects).		4	
	Development of the skull. Anthropometric points, aspects, planes.			2
	Masticatory apparatus. Ontogenesis of oral cavity. Vices (defects). Ontogenesis of teeth. Vices (defects).			4
	Organization of the arterial supply of the head and neck.			2

6.2.2. The thematic plan of laboratory practicums (*this type of classes isn't stipulated in the curriculum*)

6.2.3. Thematic plan of practicals

№	Name of the topics of practicals	Volume in AH		
		1 semester	2 semester	3 semester
1	Bones of the trunk: vertebrae, sternum, ribs. The skeleton of the upper limb. Bones of the shoulder girdle: clavicule, scapula.	3		
2	Bones of the free upper limb: humerus, ulna, radius, carpal bones, metacarpals, phalanges. The skeleton of the lower limb. Pelvic bone. Bones of the free lower limb: femur, tibia, fibula, bones of foot. X-ray anatomy.	3		
3	Classification of joints. Joints between vertebrae. Joints of the thorax. Thoracic cage as a whole. Vertebral column as a whole. Joints of the upper limbs.	3		
4	Joints of the pelvic girdle. The pelvis as a whole. Joints of the free lower extremities. X-ray anatomy	3		
5	Classification of muscles. Superficial and deep muscles of the back. Fasciae of the back. Muscles of the thorax. Muscles of the abdomen. Diaphragm. Topography of the trunk. Weak places.	3		
6	The muscles and fasciae of the shoulder girdle and arm. The muscles of the forearm and hand. Topography of the upper limb.	3		
7	The muscles and fasciae of the hip girdle and thigh. The muscles and fasciae of the leg and foot. Topography of the lower limb.	3		
8	CONTROL "BONES. JOINTS. MUSCLES"	3		
9	General characteristics of internal organs. Review of the oral cavity. The pharynx. The oesophagus. The stomach. The small intestine. The duodenum. The large intestine. The caecum. The vermiform appendix as an organ. The rectum. The anal canal. Structure (construction), topography, blood supply, innervation.	3		

10	The liver; gall bladder. The pancreas. Structure (construction), topography, blood supply, innervation. The peritoneum, topography of the peritoneum at the upper storey (part), middle storey (part) and the lower storey (pelvis) of the peritoneal cavity	3		
11	The external nose. The nasal cavity. The larynx. The muscles of the larynx. The trachea, bronchi. Structure, blood supply and innervation.	3		
12	The lungs: topography. The segments of the lungs. The pleura; parts, topography. The mediastinum; parts, topography.	3		
13	The kidneys. Topography of kidneys. The excretory tree of the kidneys. The ureter, urinary bladder; structure (construction), topography, blood supply, innervation. The urethra, sex features.	3		
14	The testis, epidydimis. The coats of the testis. The prostate, seminal vesicles. The spermatic cord, its parts. The male external genital organs. The ovary. The uterus. The uterine tube. The muscles and fasciae of the male perineum and female perineum.	3		
15	The central and peripheral organs of the immune system. The spleen. The principles of organization of the lymphoid organs. The classification of the lymph nodes. The lymphatic vessels and regional lymph nodes of parts of human body	3		
16	CONTROL “ALIMENTARY (digestive), RESPIRATORY, GENITAL SYSTEMS”	3		
17	The endocrine organs. The characteristics, principles of organisation, functions. The thyroid gland. The suprarenal glands. The hypophysis, epiphysis.		3	
18	The general anatomy of blood vessels. The heart, the structure (construction) of the wall. Valves. The conducting system of the heart. Blood supply and innervation of the heart. The pericardium.		3	
19	The vessels of the lesser (pulmonary) circle. The aorta, departments. Branches of the thoracic aorta. The parietal, visceral branches of the abdominal aorta. The common, external and internal iliac artery, topography.		3	
20	The brachiocephalic trunk. The subclavian artery; topography. The axillary and brachial arteries. The arteries of the forearm and hand. The femoral artery. The popliteal artery. The arteries of the leg and foot.		3	
21	The peculiarities of vascularisation of the embryo, fetus and its changes after the birth. The superficial and deep veins of the upper limb and the lower limb; topography. The superior vena cava. The azygos and hemi-azygos veins. The brachiocephalic veins. The inferior vena cava.		3	
22	The hepatic portal vein. Anastomoses between the superior and inferior venae cavae. Anastomoses between the venae cavae and hepatic portal vein. Lymphoid organs. The lymphatic vessels and regional lymph nodes of parts of human body The		3	

	thoracic duct.			
23	CONTROL "CARDIOVASCULAR SYSTEM. IMMUNE SYSTEM. LYMPHOID ORGANS. ENDOCRINE ORGANS"		3	
24	The nervous system. Ontogenesis.The spinal cord: external features, internal features. The simple, avoidance and complex reflex arches. The medulla oblongata, external features, internal features. The cerebellum. The pons, external features, internal features. The fourth ventricle. The rhomboid fossa. The midbrain (mesencephalon), external features, internal features.		3	
25	The construction of the diencephalon and third ventricle. The rhinencephalon. The basal nuclei. Lateral ventricles. The telencephalon. The sulci and gyri of the superolateral, medial and basal surfaces of the cerebral hemispheres.		3	
26	The white matter of the telencephalon. The pathways of the exteroceptive sensibility. The pathways of the proprioceptive sensibility. The motor pyramidal and extrapyramidal pathways.		3	
27	The meninges of the brain and spinal cord, the spaces (ventricles). Peculiarities of the dura mater, of the arachnoid mater. The production and outflow (circulation) of the cerebrospinal fluid. The limbic system, reticular formation, extrapyramidal system.		3	
28	The anatomy and topography of the vegetative nervous system. Sympathetic and parasympathetic parts. Vegetative reflex arches. The sympathetic trunk. The parasympathetic part of the vegetative nervous system. The vegetative plexuses of the thoracic cavity, the abdominal cavity and lesser pelvis.		3	
29	Peripheral part of the nervous system. The spinal nerves. The posterior branches of the spinal nerves. The brachial plexus, construction, topography. The intercostal nerves.		3	
30	The lumbar plexus, construction, topography. The sacral plexus, construction, topography.		3	
31	Anatomical and functional characteristics of the sensory organs. The definition of "analyzer" according to I.P.Pavlov. The external ear. The anatomy of the middle ear. The internal ear. The auditory and vestibular analyzers.		3	
32	The organ of vision; fibrous coat, vascular coat of the eyeball. The retina. The refraction environments of the eyeball. The accessory visual structures. The visual analyzer. The pupil and accommodation reflexes. The organ of taste. The organ of smell. The taste (gustatory) analyzer. The smell analyzer.		3	
33	Control "CENTRAL NERVOUS SYSTEM. SENSE ORGANS AND ANALYZERS".		3	
34	Vegetative reflex arches. The ascending and descending pathways		1	

35	The bones of the neurocranium: frontal, occipital, parietal, ethmoidal, temporal, sphenoidal.			3
36	The bones of the facial part of the cranium: maxilla, mandible, inferior nasal concha, vormer, nasal, palatine, lacrimal and zygomatic. The topography of the cranium: calvaria, basis. The important structures of the external basis and internal basis of the cranium. The anterior, middle, posterior cranial fossae.			3
37	The orbit, the nasal cavity; the bones compose the walls of the oral cavity; Topography of the temporal, infratemporal, pterygopalatine fossae. Topography of the counterforts (buttresses). Places of fractures.			3
38	The joints the vertebrae with the skull (atlanto-occipital, atlanto-axial joints). Joints of the bones of the skull: sutures, synchondroses, the temporomandibular joint.			3
39	Muscles and fasciae of the head. Facial (mimetic) and masticatory muscles. The fasciae of the head. Topography of the head. Ontogenesis			3
40	Muscles and fasciae of the neck. Classification. Ontogenesis. Topography of the neck.			3
41	Control "CRANIUM, JOINTS and MUSCLES of the HEAD and NECK"			3
42	General data about organization of the oral cavity; the lips, oral vestibule, oral cavity proper. The hard palate. The soft palate. The tongue, parts, development, muscles of the tongue. Salivary glands. The pharynx. Lymphoid apparatus of the alimentary (digestive) system.			3
43	General data about organization the teeth. Ontogenesis. Parodontum, periodontum. Sighs of teeth. Teeth-jaw segments. Construction of incisors, canines, premolars, molars. The deciduous and permanent teeth, their structure, their formula, the blood supply, innervation, lymphatic outflow. Eruption (dentition), attrition and abrasion.			3
44	General data about masticatory apparatus. Conception about the alveolar arch, basal arch and dental arcade. Bites. Anomaly of teeth development. Control "ORAL CAVITY and PHARYNX".			3
45	Arteries of the head and neck. The subclavian artery and common carotid artery; topography. The internal carotid artery, the topography. The blood supply of the brain.			3
46	Arteries of the head and neck. The external carotid artery, the topography, the branches and supplying regions. The brachiocephalic veins, tributaries (sources), topography. Superficial and deep veins of the neck.			3
47	The venous outflow from the head and neck. The cerebral veins. The orbital veins. The emissary veins and diploic veins. The dural venous sinuses. Anastomoses. The lymphatic vessels and regional lymph nodes of the head and neck. Lymph outflow			3

	from the head and neck.			
48	The cranial nerves. The anatomy and topography of the I, II, III, IV, VI, VIII cranial nerves. The cranial nerves. The classification of the cranial nerves. The anatomy and topography of the I, II, III, IV, VI, VIII cranial nerves. The smell analyzer. The visual analyzer. The auditory analyzer. The vestibular analyzer.			3
49	The anatomy and topography of the trigeminal nerve. The anatomy and topography of the facial nerve. Innervation of teeth. The peripheral part of the parasympathetic nervous system (the nuclei of III, VII cranial nerves, plexuses). The sympathetic part of the vegetative nervous system. The cervical sympathetic ganglia. The complicated (vegetative) reflex arches.			3
50	The anatomy and topography of the glossopharyngeal nerve, vagus nerve, accessory nerve, hypoglossal nerve. The peripheral part of the parasympathetic nervous system (the nuclei of IX, X cranial nerves, plexuses). Vegetative reflex arches.			3
51	Control "ARTERIES, VEINS, LYMPH NODES of HEAD and NECK. "CRANIAL NERVES and VEGETATIVE NERVOUS SYSTEM. NERVES of HEAD and NECK".			3
52	The cervical plexus. Topography of head and neck			1
	TOTAL (total - AH)	52	48	52

6.2.4. Thematic plan of seminars (*this type of classes isn't stipulated in the curriculum)*

6.2.5. Types and topics of student's individual work (SIW)

№	Types and topics of SIW	Volume in AH		
		1 semester	2 semester	3 semester
1	**Locomotor apparatus:** Recognizing structures in electronic atlases Finding structures on preparations in the anatomical rooms Finding structures on preparations in the anatomical museum Rewriting theoretic abstracts from modules and presentations of department	 4 11 1 6		
2	**Splanchnology** Recognizing structures in electronic atlases Finding structures on preparations in the anatomical rooms Finding structures on preparations in the anatomical museum Rewriting theoretic abstracts from modules and presentations of department	 2 7 1 4		
3	**Immune system organs and lymph outflow pathways** Recognizing structures in electronic atlases Finding structures on preparations in the anatomical	 2 2		

	rooms Finding structures on preparations in the anatomical museum Rewriting theoretic abstracts from modules and presentations of department	2 2		
4	**Endocrine glands** Recognizing structures in electronic atlases Finding structures on preparations in the anatomical rooms Finding structures on preparations in the anatomical museum Rewriting theoretic abstracts from modules and presentations of department		2 1 1 2	
5	**Cardiovascular system** Recognizing structures in electronic atlases Finding structures on preparations in the anatomical rooms Finding structures on preparations in the anatomical museum Rewriting theoretic abstracts from modules and presentations of department		1 7 1 3	
6	**Neurology** Recognizing structures in electronic atlases Finding structures on preparations in the anatomical rooms Finding structures on preparations in the anatomical museum Rewriting theoretic abstracts from modules and presentations of department		2 8 2 4	
7	**Sense organs** Recognizing structures in electronic atlases Finding structures on preparations in the anatomical rooms Finding structures on preparations in the anatomical museum Rewriting theoretic abstracts from modules and presentations of department		1 4 1 2	
8	**Locomotor apparatus of head and neck** Recognizing structures in electronic atlases Finding structures on preparations in the anatomical rooms Finding structures on preparations in the anatomical museum Rewriting theoretic abstracts from modules and presentations of department			 2 7 2 3
9	**Anatomy and topography of the oral cavity** Recognizing structures in electronic atlases Finding structures on preparations in the anatomical rooms Finding structures on preparations in the anatomical museum Rewriting theoretic abstracts from modules and presentations of department			 1 4 1 2
10	**Vessels of head and neck.** **Lymph outflow of head and neck** Recognizing structures in electronic atlases			 2

	Finding structures on preparations in the anatomical rooms Finding structures on preparations in the anatomical museum Rewriting theoretic abstracts from modules and presentations of department			6 2 2
11	**Nerves of head and neck** Recognizing structures in electronic atlases Finding structures on preparations in the anatomical rooms Finding structures on preparations in the anatomical museum Rewriting theoretic abstracts from modules and presentations of department			1 5 2 2
	TOTAL (total - AH)	44	42	44

7. Types of assessment formats for ongoing monitoring and mid-term assessment

№	Semester No.	Types of control		Name of section of academic discipline	Competence codes	Assessment formats		
						types	number of test questions	number of test task options
1.	1	Current monitoring	Control of mastering the topic	Introduction	GPC-8	Computer testing	20	3
			Monitoring the student's individual work	**Locomotor apparatus**	GPC-8	Computer testing Preparations control Written control / interview	20 15 5	15
	1		Monitoring the student's individual work	**Splanchnology**	GPC-8	Computer testing Preparations control Written control / interview	20 15 5	15
	1		Monitoring the student's individual work	**Immune system organs and lymph outflow pathways**	GPC-8	Written control	3	15
	2		Monitoring the student's individual work	**Endocrine glands**	GPC-8	Written control	3	15
	2		Monitoring the student's individual work	**Cardiovascular system**	GPC-8	Computer testing Preparations control Written control / interview	20 15 5	15

	2		Monitoring the student's individual work	**Neurology**	GPC-8	Computer testing Preparations control Written control / interview	20 15 5	15
	2		Monitoring the student's individual work	**Sense organs**	GPC-8	Computer testing Preparations control Written control / interview	20 15 5	15
	3		Monitoring the student's individual work	**Locomotor apparatus of head and neck**	GPC-8	Computer testing Preparations control Written control / interview	20 15 5	15
	3		Monitoring the student's individual work	**Anatomy and topography of the oral cavity**	GPC-8	Computer testing Preparations control Written control / interview	20 15 5	15
	3		Monitoring the student's individual work	**Vessels of head and neck. Lymph outflow of head and neck**	GPC-8	Computer testing Preparations control Written control / interview	20 15 5	15
	3		Monitoring the student's individual work	**Nerves of head and neck**	GPC-8	Computer testing Preparations control Written control / interview	20 15 5	15
2.	3	Mid-term assessment	Exam	Introduction	GPC-8	Computer testing Oral answers	100	60
	3		Exam	**Locomotor apparatus**	GPC-8	Computer testing Preparations control Oral answers	100 15 3	60
	3		Exam	**Splanchnology**	GPC-8	Computer testing Preparations control Oral answers	100 15 3	60

	3		Exam	**Immune system organs and lymph outflow pathways**	GPC-8	Computer testing Preparations control Oral answers	100 15 3	60
	3		Exam	**Endocrine glands**	GPC-8	Computer testing Preparations control Oral answers	100 15 3	60
	3		Exam	**Cardiovascular system**	GPC-8	Computer testing Preparations control Oral answers	100 15 3	60
	3		Exam	**Neurology**	GPC-8	Computer testing Preparations control Oral answers	100 15 3	60
	3		Exam	**Sense organs**	GPC-8	Computer testing Preparations control Oral answers	100 15 3	60
	3		Exam	**Locomotor apparatus of head and neck**	GPC-8	Computer testing Preparations control Oral answers	100 15 3	60
	3		Exam	**Anatomy and topography of the oral cavity**	GPC-8	Computer testing Preparations control Oral answers	100 15 3	60
	3		Exam	**Vessels of head and neck. Lymph outflow of head and neck**	GPC-8	Computer testing Preparations control Oral answers	100 15 3	60
	3		Exam	**Nerves of head and neck**	GPC-8	Computer testing Preparations control Oral answers	100 15 3	60

The computer testing includes 20 questions (sample attached)

081. Specify the muscles that bring the scapula closer to the vertebral column.
a – latissimus dorsi
b – trapezius
c – levator scapulae
d – rhomboid major

082. Specify the muscles acting on the elbow joint.
a – biceps brachii
b – coracobrachialis
c – pronator teres
d – triceps brachii

083. Specify the muscles flexing the hand.
a – flexor digitorum superficialis
b – flexor digitorum profundus
c – flexor carpi ulnaris
d – extensor carpi ulnaris

084. List the posterior muscles of the thigh.
a – gluteus maximus
b – biceps femoris
c – semitendinosus
d – semimembranosus

085. Which muscles belong to the medial muscles of thigh?

a – sartorius
b – adductor magnus
c – quadratus femoris
d – gracilis

086. Specify the muscles that make flexion of the thigh.
a – sartorius
b – iliopsoas
c – biceps femoris
d – semitendinosus

087. Specify the structures forming the boundaries of the femoral triangle.
a – inguinal ligament
b – sartorius
c – rectus femoris
d –adductor longus

088. Specify the canals opening into the popliteal fossa.
a – femoral canal
b – adductor canal
c – cruropopliteal canal
d – inferior muscularfibular canal

089. Specify the muscles forming the walls of the popliteal fossa
a – semitendinosus
b – semimembranosus
b – medial head of gastrocnemius
c – lateral head of gastrocnemius
d – biceps femoris

090. Specify the lateral muscles of the leg.
a – extensor digitorum longus
b – fibularis longus
c – fibularis brevis
d – third fibular muscle

091. Specify the muscles that form a deep layer of the posterior group of the leg muscle.
a – popliteus
b – flexor digitorum longus
c – third fibular muscle
d – tibialis posterior

092. Note the anatomical and functional features of the triceps surae.
a – begins on tibial tuberosity
b – begins on the posterior surface of the tibia
c – bends the leg
d – bends the foot

093. Specify the muscles involved in the extension (dorsiflexion) of the foot.
a – extensor digitorum longus
b – extensor hallucis longus
c – tibialis posterior
d – tibialis anterior

094. Specify the muscles involved in flexion (plantar flexion) of the foot.
a – flexor digitorum longus
b – flexor hallucis longus
c – tibialis posterior
d – triceps surae.

095. At the level of which tooth does the parotid duct open in the oral vestibule?
a – at the level of the 1st upper molar
b – at the level of the 2nd lower molar
c – at the level of the 2nd upper molar
d – at the level of the 1st lower molar

096. In what place of the oral cavity does the submandibular duct open?
a – frenulum of the tongue
b – frenulum of lower lip
c – sublingual caruncle
d – frenulum of upper lip

097. Specify the taste buds located on margins of the tongue.
a – fungiform papillae
b – vallate papillae
c – foliate papillae
d – filiform papillae

098. Specify the location of the lingual tonsill.
a – tip of tongue
b – body of tongue
c – lateral surface of tongue
d – root of tongue

099. Specify which structures form the hard palate.
a – mucous membrane
b – palatine aponeurosis
c – musculus uvulae
d – palatine tonsils

100. Specify the muscles of the soft palate.
a – palatoglossus
b – levator veli palatini
c – tensor veli palatini
d – palatopharyngeus
e – musculus uvulae

Answers
081. B C D
082. A C D
083. A B C
084. B C D
085. B D
086. A B
087. A B D
088. B C
089. A B C D E
090. B C
091. A B D
092. B C D
093. A B D
094. A B C D
095. C
096. C
097. C
098. D
099. A B
100. A B C D E

Preparations control consists of demonstration of 15 anatomical structures on the preparations, models, plates

1. Intervertebral foramen
2. Anterior arch of the atlas
3. Inferior articular facet of the thoracic vertebrae
4. Superior costal facet
5. Auricular surface of the sacrum
6. Angle of the sternum
7. Groove for ulnar nerve of the humerus
8. Articular circumference of the ulna
9. Scaphoid
10. Ischial spine
11. Anterior gluteal line
12. Iliac fossa
13. Intertrochanteric line
14. Neck of the fibula (peronea)
15. Body of the talus

Written control / interview includes 3 questions

Describe the muscles and fasciae of the shoulder girdle.
The topography of the axillary cavity.
Describe the muscles of the leg: the anterior group (extensors of the foot and fingers).

The exam consists of three parts: Computer testing, Preparations control, Oral answers.

Computer testing includes 50 questions (sample attached)

031. What parts are distinguished in the frontal bone?
a – squamous
b – nasal
c –orbital
d – wing

032. Choose the correct statements characteristic of the bones of the cranial vault (calvaria).
a - usually flat bones
b – outer surface contains grooves for sinuses
c – they contain two layers of compact bone tissue, between which a spongy bone tissue is located
d – these are, as a rule, pneumatized bones
e – inner (cerebral) surface contains impressions of cerebral gyri

033. What anatomical structures are distinguished in the occipital bone?
a - basilar part
b – body
c – hypoglossal canal
d – groove for transverse sinus

034. Specify the parts of the temporal bone.
a – body
b – squamous
c – tympanic part
d – petrous part

035. Specify the parts of the sphenoid bone.
a – body
b – greater wings
c – lesser wings
d – pterygoid processes

036. What processes are distinguished at the maxilla?
a – frontal
b – zygomatic
c – palatine
d – alveolar

037. Which nasal conchae are processes of the ethmoid bone?
a – supreme nasal concha
b – superior nasal concha
c – middle nasal concha
d – inferior nasal concha

038. On the inner (cerebral) surface of the cranial vault are located:
a – impressions of cerebral gyri
b – arterial grooves
c –granular foveolae
d – grooves for sinuses

039. Which bones form the anterior cranial fossa?
a – orbital parts of frontal bone
b – cribriform plate of ethmoid bone
c – lesser wings of sphenoid bone
d – squamous part of temporal bone

040. Which bones form the middle cranial fossa?
a – the body of sphenoid bone
b – greater wings of sphenoid bone
c – squamous part of temporal bone
d – petrous part of temporal bone

041. What foramina are there at the floor of the middle cranial fossa?
a – foramen spinosum
b – superior orbital fissure
c – foramen rotundum
d – foramen ovale

042. Which bones form the posterior cranial fossa?
a – occipital bone
b – lesser wings of sphenoid bone
c – petrous part of temporal bone
d – cribriform plate of ethmoid bone

043. Which bones form the medial wall of the orbital cavity?
a – sphenoid bone
b – ethmoid bone
c – lacrimal bone
d – maxilla

044. Which bones form the inferior wall of the orbital cavity?
a – zygomatic bone
b – maxilla
c – palatine bone
d – frontal bone

045. Specify the structures of the mandible
a – body
b – mental protuberance
c – ramus
d – mandibular foramen

046. Which bones belong to the cerebral skull (neurocranium)?
a – frontal
b – parietal
c – occipital
d – temporal

047. Which bones are involved in the formation of a hard (bony) palate?
a – palatine bone
b – ethmoid bone
c – maxilla
d – sphenoid bone

048. Which bones are involved in the formation of the nasal septum?
a – nasal bone
b – vomer
c – lacrimal bone
d – ethmoid bone

049. Name the main types of connections.
a – synovial joints (diarthrosis)
b – synarthrosis
c – ligaments
d– symphysis

050. Which of the listed types of joints are continuous (synarthrosis)?
a – synchondrosis
b – synostosis
c – synovial joint
d – fibrous joint

051. What types of joints are fibrous?
a – sutures
b – gomphoses
c – ligaments
d – membranes

052. Name the types of sutures.
a – plane
b – serrate
c – squamous
d – round

053. Main elements of the joint are:
a – joint cavity
b – articular surfaces
c – articular cartilage
d – synovial fluid
e – joint capsule

054. What joints are there in structure and organization?
a – simple
b – complex
c – combined
d – compound

055. Which joints (in shape) are multiaxial?
a – spheroidal joint
b – cotiloid joint
c – plane joint
d – bicondylar joint

056. Which joints (in shape) are biaxial?
a – bicondylar joint
b – plane joint
c – ellipsoid joint
d – saddle joint

057. Which joints (in shape) are uniaxial?
a – saddle joint
b – cylindrical joint
c – cochlear joint
d – gynglimus

058. Specify the physiological curves of the vertebral column.
a – cervical and lumbar lordoses
b – thoracic kyphosis
c – sacral kyphosis
d – scoliosis

059. What sutures connect the bones of the calvaria?
a – sagittal suture
b – coronal suture
c – lambdoid suture
d – frontal suture

060. Which joints (in shape) does the shoulder (glenohumeral) joint belong to?
a – to spheriodal joints
b – to cylindrical joints
c – to saddle joints
d – to trochlear joints
061. Which joints (in shape) does the wrist joint belong to?
a – to the trochlear joints
b – to ellipsoid joints
c – to cylindrical joints
d – to saddle joints
062. What movements are possible in the wrist joint?
a – rotation of the hand
b – supination of the hand
c – flexion and extension of the hand
d – abduction and adduction of the hand
063. Which joints of the lower limb belong to the multiaxial?
a – hip joint
b – knee joint
c – ankle joint
d – interphalangeal joints
064. What movements are possible in the hip joint?
a – circular movements
b – rotation of the femoral head
c – flexion and extension
d – abduction and adduction
065. Which joints (by structure) does the knee joint belong to?
a – to simple joints
b – to complex joints
c – to compound joints
d – to combined joints
066. Which bones are involved in the formation of the knee joint?
a – femur
b – fibula
c – tibia
d – patella
067. What movements are possible in the knee joint?
a – flexion and extension
b – abduction and adduction
c – circular movements
d – rotation
068. Which bones are involved in the formation of the ankle joint?
a – calcaneus
b – tibia
c – fibula
d – talus
069. What movements are possible in the ankle joint?
a – rotation of the fibula
b – rotation of the tibia
c – flexion and extension
d – circular movements
070. Which ligament is the most powerful on the foot?
a – long plantar ligament
b – plantar calcaneocuboid ligament
c – talonavicular ligament
d – bifurcated ligament
071. Note the anatomical and functional features of the diaphragm.
a – begins on the lower thoracic vertebrae
b – helps to lower intra-abdominal pressure
c – begins on the lumbar vertebrae
d – promotes an increase in intra-abdominal pressure
072. Specify the weak places in the diaphragm – the places of formation of diaphragmatic hernias.
a – esophageal hiatus
b – sternal part of the diaphragm
c – lumbocostal triangle
d – sternocostal triangle
073. What anatomical structures are involved in the formation of the anterior wall of the rectus sheath?
a –thoracolumbor fascia
b – aponeurosis of the external oblique
c – aponeurosis of the internal oblique
d – transverse fascia
074. Specify the structures involved in the formation of the walls of the inguinal canal.
a – internal oblique
b – rectus abdominis
c – transverse fascia
d – inguinal ligament
075. Indicate the weak places of the abdominal cavity.
a – linea alba
b – umbilical ring
c – medial inguinal fossa
d – lateral inguinal fossa
076. Identify the suprahyoid muscles.
a – mylohyoid
b – digastric
c – thyrohyoid
d – stylohyoid
077. Identify the infrahyoid muscles.
a – digastric
b – omohyoid muscle
c – sternohyoid muscle
d – sternothyroid muscle
078. Specify the structures involved in the formation of the submandibular triangle.
a – stylohyoid
b – mylohyoid
c – mandible
d – digastric
079. Specify the masticatory muscles.
a – temporal muscle
b – masseter
c – medial pterygoid
d – lateral pterygoid
080. Specify the facial muscles:
a – orbicularis oris
b – masseter
c – buccinator
d –zygomaticus major
081. Specify the muscles that bring the scapula closer to the vertebral column.
a – latissimus dorsi
b – trapezius
c – levator scapulae
d – rhomboid major

EXAM questions

The general theoretical questions.

l. The subject and content of anatomy. History.
2. Structural organization of the human body: tissue, organ, system of organs. Constitutions.
3. Parts and regions of human body. Anatomical terminology. Axes, planes.

The anatomy of the locomotor system.

l. The bone as the organ; development. The classification of bones. Construction of the long bone. Diaphysis. Epiphysis. Metaphysis. Periosteum and endosteum. Compact (lamellar) bone. Spongy bone.
2. The vertebrae of the different departments of the vertebral column (cervical, thoracic, lumbar, sacral and coccygeal). The development of the vertebrae. The anomalies. Applied anatomy of the vertebral column.
3. The junctions between vertebrae. The atlanto-occipital joint. Movements in this joint.
4. The vertebral column as a whole: structure, bends, movements. The anomalies of the vertebral column.
5. The ribs and the sternum: structure. The junctions of the ribs with the vertebrae and the sternum. The thoracic cage as a whole, its individual and typological peculiarities, movements of the ribs. Applied anatomy.
6. The development of the skull (cranial base and calvaria). The branchial arches.
7. The bones of the cranium: frontal, occipital, parietal, ethmoidal. The orbit, the structure of walls, openings, their contents.
8. The temporal bone, its parts, openings, canals and their contents.
9. The sphenoidal bone, its parts, openings and their contents.

10. The maxilla, its parts, openings and their contents. Development..
11. The mandible, its parts, openings and their contents. Development..
12. The skull of newborns. The age, genital, typological peculiarities of the skull.
15. The pterygopatatine fossa, temporal fossa and the infratemporal fossa, topography, walls, openings and contents.
16. The bony nasal cavity, walls, openings. The paranasal sinuses.
17. The internal surface of the cranial base, the openings and contents.
18. The external surface of the cranial base, the openings, contents.
19. The classification of the bones connections (synarthroses, symphyses, diarthroses). Peculiarities.
20. The structure of the synovial joint (diarthrosis). The classification of the joints (shape of the articular surfaces, number of the axes, construction and organization). The volume of the movements in the joints.
21. The articulation of the bones of the skull. The sutures. The temporomandibular joint; the structure, the shape, the muscles, which do movement on this joint, their vascularisation and innervation.
22. The bones of the free part of the upper limb.
23. The bones and the junctions of the pectoral (shoulder girdle).
24. The shoulder joint; the structure, shape, the biomechanics.
25. The elbow joint, the peculiarities of its structure.
26. The joints of the hand; the structure, shape, the movement.
27. The bones of the free part of the lower limb.
28. The bones of the pelvic girdle and their junctions. The pelvis as a whole. The sizes of the female pelvis. The difference between male pelvis and female pelvis.
29. The hip joint; the structure, shape, the movements.
30. The knee joint, the structure, shape, the movements.
31. The ankle joint; the structure, shape, the movements.
32. The joints of the foot; the structure, shape, the movements. Passive and active parts of the feet arches.
33. The general anatomy of the muscles; the structure of muscles as a organ, their classification by the form, the structure, the situation etc. The anatomical and physiological diameter of muscles.
34. The auxiliary apparatus of muscles: classification, fasciae, synovial sheaths, synovial bursae, sesamoid bones, ect. The antagonistic and synergistic muscles.
35. The muscles and fasciae of the chest, topography, points of attachments, functions, blood supply and innervation.
36. The muscles and fasciae of the back, topography, points of attachments, functions, blood supply and innervation.
37. The anatomy of the muscles of the abdomen, topography, points of attachments, functions, blood supply and innervation. The rectus sheath. The linea alba.
38. The inguinal canal, its walls, construction. The superficial and deep inguinal rings, the contents of the canal.
39. The diaphragm, parts, topography, functions. The blood supply and innervation. Development of the diaphragm.
40. The muscles of the neck, points of attachments, functions, blood supply and innervation. Topography of the muscles of the neck and fasciae; spaces of the neck.
41. The facial (mimetic) muscles, topography, points of attachments, functions, blood supply and innervation.
42. The masticatory muscles, topography, points of attachments, functions, blood supply and innervation.
43. The muscles and the fasciae of the shoulder (pectoral) girdle, topography, points of attachments, functions, blood supply and innervation.
44. The muscles and the fasciae of the arm: topography, points of attachments, functions, blood supply and innervation.
45. The muscles and the fasciae of the forearm: topography, points of attachments, functions, blood supply and innervation.
46. The muscles of the hand, topography, points of attachments, functions, blood supply and innervation. The canals and synovial sheaths of the hand.
47. The axillary fossa, its walls, openings and their contents. The canal of the radial nerve.
48. The topography of the upper limb.
49. The muscles and the fasciae of the hip girdle: topography, points of attachments, functions, blood supply and innervation.
50. The muscles and fasciae of the anterior compartment of the thigh: topography, points of attachments, functions, blood supply and innervation.
51. The femoral canal, its walls and rings.
52. The muscles and fasciae of the medial and posterior compartments of the thigh: topography, points of attachments, functions, blood supply and innervation.
53. The muscles and the fasciae of the leg and the foot. Topography, points of attachments, functions, blood supply and innervation.
54. Topography of the lower limb.

The anatomy of the inner organs.
1. General characteristic of the internal organs. Peculiarities of walls of the tube.
2. The oral cavity: the lips, oral vestibule, oral cavity proper, hard palate and soft palate. The structure, blood supply and innervation. Ontogenesis.
3. The deciduous and permanent teeth, their structure, their formula, the blood supply, innervation, lymphatic outflow.
4. The tongue, structure, functions, blood supply and innervation. Ontogenesis. The taste analyzer.
5. Salivary glands. The sublingual, submandibular and parotid glands; structure, the ducts of the glands, the blood supply and innervation.
6. The pharynx, its structure, blood supply and innervation. The lymph ring of the pharynx (Pirogov's ring).
7. The oesophagus; topography, the structure, blood supply and innervation.
8. The stomach; the structure, topography, blood supply and innervation.
9. The small intestine; the parts, the structure, topography. The relationship with the peritoneum, blood supply and innervation.
10. The duodenum; the parts, the structure, topography, the relationship with the peritoneum, the blood supply and innervation.
11. The large intestine; its parts, topography, relationship with the peritoneum, the structure, the blood supply and innervation.
12. The caecum: the structure, relation to the peritoneum, topography of the vermiform appendix, the blood supply and innervation. The vermiform appendix as an organ
13. The rectum; topography, relation to the peritoneum, the structure of the wall, the blood supply and innervation.
14. Ontogenesis of the digestive tube.
15. The liver; the structure, topography, the blood supply and innervation.The gall bladder, the ducts of the gall bladder and the liver, the blood supply and innervation.
16. The pancreas; topography, the structure of the ducts of the pancreas, the blood supply and innervation.
17. The peritoneum, topography of the peritoneum at the upper storey (part) of the peritoneal cavity. The lesser omentum, the omental bursa (lesser sac), the hepatic bursa, the pregastric bursa, their walls, recesses.
18. The peritoneum, topography of the peritoneum at the middle storey (part) of the peritoneal cavity and the lower storey.
19. The external nose. The nasal cavity. The olfactory and respiratory regions. The blood supply and innervation of the nasal mucosa.
20. The larynx. The cartilages of the larynx, the junctions. The elastic cone of the larynx. The muscles of the larynx, their classification, functions. The innervation and blood supply.

21. The trachea, the bronchi. Their structure, blood supply and innervation.
22. The lungs: the topography. The segments of the lungs. The anatomy and topography of roots of the right and left lungs. The blood supply and innervation.
23. Development of the respiratory system.
24. The pleura; the parts, the pleural cavity, topography, the pleural recesses.
25. The mediastinum; the parts, the organs of the mediastinum, topography.
26. The projections of the lungs and pleura. The topography.
27. The kidneys, the structure (construction), the blood supply and innervation. Topography of kidneys, coverings. The excretory tree of the kidneys, fornical apparatus, minor calices, major calices, renal pelvis.
28. Development of the urinary system.
29. The ureter, the urinary bladder; the structures, the topography, the blood supply and innervation. The urethra, sex features.
30. The testis, the epidydimis, structure, blood supply and innervation. The process of the descending of the testis. The coats of the testis.
31. The prostate, the seminal vesicles. Their structure, function. The blood supply and innervation.
32. The spermatic cord, its parts. The male external genital organs, their parts and anatomy.
33. The ovary; the topography, the structure, the relation to the peritoneum. The blood supply and innervation.
34. The uterus; the parts, the topography, the ligaments, relationship to peritoneum. The blood supply and innervation. The uterine tube: the structure, relationship to the peritoneum, the blood supply and innervation.
35. The muscles and fasciae of the male perineum and female perineum. The topography, points of attachments, functions, blood supply and innervation.
36. The anatomy of the peritoneum in the male pelvis and female pelvis. Relationship to the rectum, the urinary bladder, the uterus and other organs.
37. Development of the genital organs.

The anatomy of the blood and lymphatic vessels, the organs of immune system.
1. The general anatomy of the blood vessels. The large vessels, extraorganal and intraorganal vessels. Characteristics of the microcirculation.
2. The anastomoses of veins. The cava-cava venous anastomoses (between the superior vena cava and inferior vena cava). The portal-cava venous anastomoses (between the superior vena cava and hepatic portal vein, the inferior vena cava and hepatic portal vein).
3. The peculiarities of vascularisation of the embryo, fetus and its changes after the birth.
4. The heart: development, anomalies, topography, the projection of the borders and the valves of the heart on the anterior surface, the structure of the valves.
5. The heart, the structure (construction) of the wall. Peculiarities of the myocardium of atria and ventricles. The conducting system of the heart.
6. The general organization of the heart. Characteristics of the chambers of the heart.
7. The blood supply and innervation of the heart. The scheme of the vegetative innervation of the heart.
8. The pericardium, construction, topography, sinuses.
9. The vessels of the lesser circle. The peculiarities of their distribution in the lungs.
10. The aorta, departments. The branches of the aortic arch and thoracic aorta (parietal and visceral).
11. The parietal, visceral (paired and unpaired) branches of the abdominal aorta.
12. The common, external and internal iliac artery, topography, branches and supplying regions.
13. The external carotid artery, topography, the branches and supplying regions.
14. The internal carotid artery, topography, the branches and supplying regions. The blood supply of the brain.
15. The subclavian artery; topography, the branches and supplying regions.
16. The axillary and brachial arteries. Topography, branches and supplying regions. The blood supply of the shoulder joint.
17. The arteries of the forearm: topography, the branches and supplying regions. The blood supply of the elbow joint.
18. The arteries of the hand. The arterial palmar arches and their branches.
19. The femoral artery: topography, the branches and supplying regions.
20. The popliteal artery, its branches. The blood supply of the knee joint.
21. The arteries of the leg, the branches and supplying regions. The blood supply of the ankle joint.
22. The arteries of the foot, topography, the branches and supplying regions.
23. The superior vena cava, tributaries (sources), topography. The azygos and hemi-azygos veins and their anastomoses.
24. The brachiocephalic veins, tributaries (sources), topography. The venous outflow from the head, the neck and the upper limb.
25. The inferior vena cava, tributaries (sources), topography. Anastomoses.
26. The hepatic portal vein, tributaries (sources), topography. The branches of the hepatic portal vein in the liver. Anastomoses of the hepatic portal vein.
27. The cerebral veins. The orbital veins. The emissary veins and diploic veins. The dural venous sinuses. Anastomoses.
28. The superficial and deep veins of the upper and lower limbs. Topography.
29. Development of the arteries of the head and neck. The branchial arches.
30. The principles of the structure of the lymphatic system (capillaries, vessels, trunks and ducts), the ways of lymph circulation.
31. The thoracic duct, formation, structure (construction), topography, place of the confluence into the venous system.
32. The lymph node like an organ (structure, function). The classification of the lymph nodes.
33. The lymphatic vessels and regional lymph nodes of the head and neck.
34. The lymphatic vessels and regional lymph nodes of the upper extremity.
35. The lymphatic vessels and regional lymph nodes of the lower limb.
36. The lymphatic vessels and nodes of the mammary glands, the regional lymph nodes.
37. The lymphatic vessels of the lungs and the lymph nodes of the thoracic cavity.
38. The lymphatic vessels and lymph nodes of the abdominal cavity.
39. The lymphatic vessels and regional lymph nodes of the pelvis.
40. The organs of the immune system, the classification. The central and peripheral organs of the immune system.
41. The spleen; development, structure (construction), topography, blood supply, innervation.

The anatomy of central nervous system.
1. The classification of the nervous system. Development of the nervous system (principles of ontogenesis and phylogenesis).
2. The notion about the neuron; classification. The nervous fibres, fascicles, roots, and s ganglia. The simple, avoidance and complex reflex arches.
3. The spinal cord: the segments, structure (construction), external features, internal features.
4. The development of brain: brain bladders and their derivates.
5. The grey matter of the cerebral hemispheres (the basal ganglia, cortex).
6. The sulci and the gyri of the medial and basal surfaces of the cerebral hemispheres.
7. The sulci and gyri of the superolateral surface of the cerebral hemispheres.
8. The classification of the white matter. The association system of the fibres of the white matter. The commissural and projection fibres of the

hemispheres of the brain (the corpus callosum, the fornix, the commissures, the internal capsule).
9. The lateral ventricles, parts, walls. The third ventricle, walls.
10. The diencephalon, parts, external features, internal features.
11. The midbrain (mesencephalon), parts; external features, internal features. The topography of the nuclei of the cranial nerves.
12. The metencephalon, parts, external features, internal features. The topography of the nuclei of the cranial nerves.
13. The cerebellum, parts, external features, internal features (the cerebellar nuclei, the cerebellar peduncles).
14. The medulla oblongata, external features, internal features. The topography of the nuclei of the cranial nerves.
15. The rhomboid fossa, its relief, the projection of nuclei of the cranial nerves.
16. The fourth ventricle, walls, circulation of the cerebrospinal fluid.
17. The conducting pathways of the exteroceptive sensibility (pain and temperature, touch (tactile)).
18. The conducting pathways of the proprioceptive sensibility (to the cerebellum and to the telencephalon).
19. The motor conducting pyramidal and extrapyramidal pathways.
20. The meninges of the brain and spinal cord, the spaces.
21. The telencephalon, cortex. Centres of the first and second signal systems.

The anatomy of the peripheral part of the nervous system and endocrine organs.
1. The spinal nerve and its branches. Forming of the plexus of spinal nerves. The posterior branches of the spinal nerves and regions of their distribution.
2. The cervical plexus, topography, branches, regions of innervation.
3. The brachial plexus, topography, branches, regions of innervation.
4. The lumbar plexus; topography, the branches and regions of innervation.
5. The sacral plexus, topography, the branches and regions of innervation. Short branches.
6. The sciatic nerve, topography, the branches and regions of innervation. The innervation of the skin of the lower limb.
7. The I and II pairs of the cranial nerves. The conducting pathway of the visual analyser, smell analyser.
8. The III, IV, VI pairs of the cranial nerves, the regions of innervation. The pathways of the pupillary reflex and accommodation.
9. The trigeminal nerve (V pair of the cranial nerves), the branches, topography and regions of innervation.
10. The ophthalmic nerve, the branches, topography and regions of innervation.
11. The maxillary nerve, the branches, topography and regions of innervation.
12. The mandibular nerve, the branches, topography and regions of innervation.
13. The facial nerve, topography, the branches and regions of innervation.
14. The vestibulocochlear nerve (VIII pair of the cranial nerves), topography of the nuclei. The conducting pathways of the vestibular analyzer.
15. The vagus nerve, the topography of the nuclei, the branches and regions of the innervation.
16. The glossopharyngeal nerve (IX pair of the cranial nerves), the nuclei, the topography, the branches and regions of innervation.
17. The accessory nerve (XI) and hypoglossal nerve (XII), the nuclei, topography, branches and regions of innervation.
18. The autonomic division (part) of the nervous system, its parts, the characteristics of the parts.
19. The parasympathetic part of the autonomic division of the nervous system. The general characteristic, the ganglions, roots, the distribution of the branches, the cranial and pelvic parts.
20. The sympathetic part of the autonomic division of the nervous system. The general characteristics of the sympathetic trunk (the cervical part, the thoracic part, the lumbar and sacral part).
21. The endocrine organs. The characteristics, principles of organisation, functions. The classification. Development.
22. The thyroid gland. The structure, the function, the topography. The blood supply of the organ.
23. The suprarenal glands (the structure, function, topography, blood supply of the gland).
24. The hypophysis, epiphysis (topography, structure (construction), blood supply, innervation).

The anatomy of the sensory organs.
1. The external ear, its parts, structure (construction), blood supply, innervation. Development.
2. The anatomy of the middle ear (the tympanic cavity, the auditory ossicles, the auditory (pharyngotympanic) tube, the mastoid antrum and cells). The blood supply and innervation. Development.
3. The internal ear; the bony and the membranous labyrinths. The spiral organ. The conducting pathway of the auditory analyser.
4. The organ of vision; the general plan of the structure, the fibrous coat, the vascular coat of the eyeball, its parts. The mechanism of the accommodation. The retina. Development.
5. The refraction environments (surroundings) of the eyeball (the cornea, the aqueous humour of the chambers, the lens, the vitreous body).
6. The accessory visual structures; the extra-ocular muscles, eyebrow, eyelids, conjunctiva, the lacrimal apparatus, their blood supply, innervation.
7. The anatomy of the skin and of its derivatives. The mammary gland; the topography, the structure, the vascularisation and innervation. The transport of the lymph.

8. Educational, methodological and informational support for mastering the academic discipline (printed, electronic publications, the Internet and other network resources)

8.1. Key literature references

№	Name according to bibliographic requirements	Number of copies	
		at the department	in the library
1	**Textbook of human anatomy**. – 2018. Locomotor apparatus. Vol. 1 / **Kolesnikov**, L. L. ; Nikityuk, D. B. ; Klochkova, S. G. ; Stelnikova, I. G. – Moscow : GEOTAR-Media, 2018. – 288 p. : il. – ISBN 9785970440384.	177	
2	**Textbook of human anatomy**. – 2018. Splanchnology and cardiovascular system. Vol. 2 / **Kolesnikov**, L. L. ;	146	

	Nikityuk, D. B. ; Klochkova, S. G. ; Stelnikova, I. G. – Moscow : GEOTAR-Media, 2018. – 320 p. : il. – ISBN 9785970445402.	
3	**Textbook of human anatomy**. – 2018. Nervous system. Esthesiology. Vol. 3 / **Kolesnikov**, L. L. ; Nikityuk, D. B. ; Klochkova, S. G. ; Stelnikova, I. G. – Moscow : GEOTAR-Media, 2018. – 216 p. : il. – ISBN 9785970445624.	148

8.2. Further reading

№	Name according to bibliographic requirements	Number of copies	
		at the department	in the library
1	Sapin, M. R. Textbook of human anatomy : for medical students. 1 / M. R. Sapin, L. L. Kolesnikov, D. B. Nikitjuk ; Sapin M. R. ; Kolesnikov L. L. ; Nikitjuk D. B. – 2nd ed. – Moscow : New Wave Publisher, 2007. – 416 c. : ил. тв. – ISBN 978-5-7864-0210-1.	177	
2	Sapin, M. R. Textbook of human anatomy : for medical students. 2 / M. R. Sapin, L. L. Kolesnikov, D. B. Nikitjuk ; Sapin M. R. ; Kolesnikov L. L. ; Nikitjuk D. B. – Moscow : New Wave Publisher, 2005. – 480 c. : тв. – ISBN 5-7864-0211-8.	174	

8.3. Electronic educational resources for teaching academic subjects

8.3.1. Internal Electronic Library System of the University (IELSU)

№	*Name of the electronic resource*	*Brief description (content)*	*Access conditions*	*Number of users*
1	Билич, Г. Л. Анатомия человека. Т. 2 : атлас в трех томах / Г. Л. Билич, В. А. Крыжановский, В. Н. Николенко. – М. : ГЭОТАР-Медиа, 2012. – 696 с. : ил. мяг. – ISBN 978-5-9704201-4-0.	Atlas in Russian, English, Latin	http://nbk.pimunn.net/MegaPro/UserEntry?Action=Link_FindDoc&id=86906&idb=0	

8.3.2. Electronic educational resources acquired by the University

№	*Name of the electronic resource*	*Brief description (content)*	*Access conditions*	*Number of users*
1	Topographic and clinical anatomy of the human body : the teaching aid for foreign students / I. I. Kagan, S. N. Lyashchenko, A. O. Mironchev - Москва : ГЭОТАР-Медиа, . - ISBN 978-5-9704-6560-8. - Текст : электронный // ЭБС "Консультант студента" : [сайт].	Textbook	URL : https://www.studentlibrary.ru/book/ISBN9785970465608.html (дата обращения: 28.11.2022). - Режим доступа : по подписке	
2	Work Book in	Textbook	http://nbk.pimunn.	

	Human Anatomy. Locomotion apparatus : textbook / A. K. Усович, I. A. Piatsko, D. A. Tolyaronok, Y. E. Yusifov ; A. K. Усович, I. A. Piatsko, D. A. Tolyaronok, Y. E. Yusifov. – Витебск : ВГМУ, 2020. – 174 с. – ISBN 9789855800461. – Текст : электронный. – URL: https://www.books-up.ru/ru/read/work-book-in-human-anatomy-locomotion-apparatus-14911662/ (дата обращения: 28.11.2022). – Режим доступа: по подписке.		net/MegaPro/UserEntry?Action=Link_FindDoc&id=225396&idb=0	
3	Билич, Г. Л. Анатомия человека : атлас. В 3-х томах. Том 1. Опорно-двигательный аппарат. Билич Г. Л. , Крыжановский В. А. 2010. - 784 с. - ISBN 978-5-9704-1241-1. - Текст : электронный // ЭБС "Консультант студента" : [сайт]. -	Atlas	URL : https://www.studentlibrary.ru/book/ISBN9785970412411.html (дата обращения: 29.11.2022). - Режим доступа : по подписке.	
4	Билич, Г. Л. Анатомия человека. Атлас. В 3 томах. Том 2. Внутренние органы : учебное пособие / Билич Г. Л. , Крыжановский В. А. - Москва : ГЭОТАР-Медиа, 2013. - 824 с. - ISBN 978-5-9704-2542-8. - Текст : электронный // ЭБС "Консультант студента" : [сайт]. -	Atlas	URL : https://www.studentlibrary.ru/book/ISBN9785970425428.html (дата обращения: 29.11.2022). - Режим доступа : по подписке.	
5	Билич, Г. Л. Анатомия человека. Атлас : учебное пособие. В 3-х томах. Том 3. Нервная система. Билич Г. Л. , Крыжановский В. А. 2012. - 792 с. : ил. - 792 с. - ISBN 978-5-9704-1243-5. - Текст : электронный // ЭБС "Консультант студента" : [сайт]. -	Atlas	URL : https://www.studentlibrary.ru/book/ISBN9785970412435.html (дата обращения: 29.11.2022). - Режим доступа : по подписке.	
6	Nikolaev, A. V. Topographic Anatomy and Operative Surgery : textbook / A. V. Nikolaev.	Textbook	URL : https://www.studentlibrary.ru/book/ISBN9785970460	

	- М. : GEOTAR-Media, 2021. - 672 р. - 672 с. - ISBN 978-5-9704-6095-5. - Текст : электронный // ЭБС "Консультант студента" : [сайт].		55.html (дата обращения: 28.11.2022). - Режим доступа : по подписке.	
7	Topographic and clinical anatomy of the human body : the teaching aid for foreign students / I. I. Kagan, S. N. Lyashchenko, A. O. Mironchev - Москва : ГЭОТАР-Медиа, . - ISBN 978-5-9704-6560-8. - Текст : электронный // ЭБС "Консультант студента" : [сайт].	Textbook	URL : https://www.studentlibrary.ru/book/ISBN9785970465608.html (дата обращения: 28.11.2022). - Режим доступа : по подписке	
8	Dydykin, S. S. Topographic Anatomy and Operative Surgery. Workbook. In 2 parts. Part I / Edited by S. S. Dydykin. - Москва : ГЭОТАР-Медиа, 2022. - 120 с. - ISBN 978-5-9704-6451-9. - Текст : электронный // ЭБС "Консультант студента" : [сайт].	Workbook.	URL : https://www.studentlibrary.ru/book/ISBN9785970464519.html (дата обращения: 28.11.2022). - Режим доступа : по подписке	
9	Dydykin, S. S. Topographic Anatomy and Operative Surgery. Workbook. In 2 parts. Part II / Edited by S. S. Dydykin. - Москва : ГЭОТАР-Медиа, 2022. - 120 с. - ISBN 978-5-9704-6452-6. - Текст : электронный // ЭБС "Консультант студента" : [сайт].	Workbook.	URL : https://www.studentlibrary.ru/book/ISBN9785970464526.html (дата обращения: 28.11.2022). - Режим доступа : по подписке.	

8.3.3 Open access resources

№	*Name of the electronic resource*	*Brief description (content)*	*Access conditions*
1	GEISEL SCHOOL OF MEDICINE at Dartmouth DEPARTMENT OF MEDICAL EDUCATION	Study modules	https://anatomy.host.dartmouth.edu/
2	BASIC HUMAN ANATOMY A Regional Study of Human Structure	Textbook	https://humananatomy.host.dartmouth.edu/BHA/public_html/
3	Digital Anatomist Project	Atlas	http://da.si.washington.edu/da.html
4	Anatomie-Amsterdam	Atlas	http://www.anatomie-

			amsterdam.nl/sub_sites/anatomie-zenuwwerking/123_neuro/start.htm
5	Brain Maps	Atlas	http://brainmaps.org/vrmllist.php
6	3D Human Atlas SYSTEMA	Atlas and lectures	https://systema.piter.com/

9. Material and technical support for mastering an academic discipline

9.1. List of premises for classroom activities for the discipline

1. anatomical museum, 120 sq. m, consisting of three halls equipped with showcases with wet, dry, mummified and corrosive preparations, “Pirogov’s table”.

2. anatomical rooms (10), 500 sq.m, equipped with monitor, two sectional tables, anatomical baths for storing wet preparations, stretchers.

3. department of storage of anatomical preparations (biological material)consisting of 5 rooms equipped with anatomical baths for storing wet preparations, special cabinets for bone preparations, plastinated preparations and models, diagrams, plates.

4. two computer classes.

9.2. List of equipment for classroom activities for the discipline

1. Sectional tables, sinks, stretchers, steel baths for storing wet preparations, interactive desk, chairs.

2. Fund of natural anatomical preparations (1000 dry, 2000 wet), plastinated preparations, modern anatomical models, diagrams, plates.

3. 20 computers, 6 laptops, 1 multimedia projector, 10 monitors, “Pirogov’s table”.

4. Sets of multimedia materials for sections of the discipline, videos.

9.3. A set of licensed and freely distributed software, including domestic production

Item no.	**Software**	**number of licenses**	**Type of software**	**Manufacturer**	**Number in the unified register of Russian software**	**Contract No. and date**
1	Wtware	100	Thin Client Operating System	Kovalev Andrey Alexandrovich	1960	2471/05-18 from 28.05.2018
2	MyOffice is Standard. A corporate user license for educational organizations, with no expiration date, with the right to receive updates for 1 year.	220	Office Application	LLC "NEW CLOUD TECHNOLOGIES"	283	without limitation, with the right to receive updates for 1 year.
3	LibreOffice		Office Application	The Document Foundation	Freely distributed software	

4	Windows 10 Education	700	Operating systems	Microsoft	Azure Dev Tools for Teaching Subscription	
5	Yandex. Browser		Browser	«Yandex»	3722	
6	Subscription to MS Office Pro for 170 PCs for FGBOU VO "PIMU" of the Ministry of Health of Russia	170	Office Application	Microsoft		23618/HN10030 LLC "Softline Trade" from 04.12.2020

10. List of changes to the working program (to be filled out by the template)

Federal State Budgetary Educational Institution of Higher Education
"Privolzhsky Research Medical University"
Ministry of Health of the Russian Federation
(FSBEI HE "PRMU" of the Ministry of Health of Russia)

Department of
Name of the department

CHANGE REGISTRATION SHEET

working program for the academic discipline
HUMAN ANATOMY – ANATOMY OF HEAD AND NECK

Field of study / specialty / scientific specialty: **31.05.03 DENTISTRY**
(code, name)

Training profile: _____DENTIST_____
(*name) - for master's degree programs*

Mode of study: ____ full-time _____
full-time/mixed attendance mode/extramural

Position	Number and name of the program section	Contents of the changes made	Effective date of the changes	Contributor's signature
1				

Approved at the department meeting
Protocol No. _____of _____20__

Head of the Human Anatomy Department
M.D., PhD., professor _____ Stelnikova I.G.
signature