INTERNATIONAL HIGHER SCHOOL OF MEDICINE
Department of Anatomy

SYLLABUS

2023-2024 academic year
for students of medical faculty
1 course 1st semester, groups 1-40 and 2nd semester, groups 1-12
17 credits (612 h, including auditorial 306 h, independent work – 306 h)

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The Syllabus is considered

at the meeting of the department of Anatomy
Protocol №__3___dated 10th November 2023
Head of the department_____Dzhumashalieva A.U.

Course Objective: Formation of students' knowledge of human anatomy, topographic anatomy and human histology all the body as a whole and individual organs and systems, on the basis of modern achievements in macro- and microscopy; the ability to use knowledge in the subsequent study of other fundamental and clinical disciplines, as well as in the future professional activity of a doctor.

After study of the discipline the student must:

Knowledge:

1.Principles of using anatomical terminology and logical basis of argumentation
2. Basic rules and techniques for continuous professional and personal self-education as a student and doctor.
3. Regularities of the structure of the human body as a whole, anatomical, histological and functional relationships of individual parts of the body with each other.
4. Medical products provided for the procedure for carrying out research in the field of human anatomy and histology.
5. Basic information and communication technologies, information resources and bibliographic databases.
6. Anatomical and physiological features of the structure of an adult and child's body. Basic methods of clinical and laboratory examination and assessment of the functional state of the body.
7. Main sources of scientific and medical information in the field of anatomy and rules for working with library resources.

Skill:

1. Develop communication skills and interaction with the team
2. Find and work with quality resources for continuous professional and personal self-education.
3. Orient and describe the topography and details of the structure of organs and tissues on anatomical and histological preparations.
4. Determine the scope of application of medical devices provided for the procedure for carrying out research in the field of human anatomy and histology.
5. Use educational, scientific, popular science literature, the Internet; find and show organs, tissues, their parts, structural details on anatomical macro-preparations and histological micro-preparations, name them correctly in English and Latin; find and show the organs and tissues, their parts, details of their structure in images obtained by various visualization methods.
6. Interpret the results of the morphological analysis of the surgical and sectional material.
7. Conduct a primary search for scientific and medical information in the field of anatomy and use library resources.

Attitude:

1. The principles of humanism and mercy, respectful and careful attitude towards the object being studied - the tissues and organs of the human body, the corpse; instilling highly moral standards of behavior in the section halls of the university.
2. Rules and techniques for continuous professional and personal self-education, the ability to organize one's activities for self-education and self-improvement.
3. Medical-anatomical conceptual apparatus; the simplest medical instruments (tweezers, scalpel) and light microscopy methods.
4. Skills in determining the purpose of medical devices, the scope of their application and the algorithm for their use in the study of anatomical and histological structures.
5. Proficient in basic technologies for converting information: text, spreadsheet editors, Internet search.
6. Skills in expressing and using acquired knowledge about the structure of tissues, organs and systems of adults, children and adolescents for the timely diagnosis of diseases and pathological processes.
7. Skills in selecting high-quality sources of scientific and medical information in the field of anatomy on the topic of research.

Pre-requisites:

- School Chemistry
- School Biology

Post-requisites:

- All clinical subjects;
- Pathology

Anatomy

THEMATIC PLAN OF LECTURES

1st semestr				
№	Unit	Theme of Lecture	Hour	Date
1	Osteology	1.Anatomy Introduction. The General anatomy of a skeleton. Development of bones and anomaly development of bones.	2	According to the timetable
		2.Anatomy of the Skull and Trunk Bones	2	According to the timetable
		3.Bones of upper limb.	2	According to the timetable
		4.Bones of lower limb.	2	According to the timetable
		Total	**8**	
2	Syndesmology	5.Introduction. General anatomy of the joints. Classification	2	According to the timetable
		6.The joints of the skull and trunk	2	According to the timetable
		7.The joints of the shoulder girdle and upper limbs	2	According to the timetable
		8.The joints of the pelvic girdle and lower limbs	2	According to the timetable
		Total	**8**	
3	Myology	9.Introduction. General anatomy of the muscles and fascias. Development and anomalies during the development of muscles. Classification	2	According to the timetable
		10.The muscles and fascias of the head and neck	2	According to the timetable
		11.The muscles and fascias of the trunk	2	According to the timetable
		12.The muscles and fascias of the upper limbs	2	According to the timetable
		13.The muscles and fascias of the lower limbs	2	According to the timetable
		Total	**10**	
4	Splanchnology	14.Anatomy of organs of the Digestive system	2	According to the timetable
		15.Anatomy of organs of the Respiratory system	2	According to the timetable
		16.Anatomy of organs of the Urinary system	2	According to the timetable
		17.Anatomy of organs of the Reproductive system	2	According to the timetable
		18.Anatomy of organs of the Endocrine system	2	According to the timetable
		Total	**10**	
		Total	**36**	
2nd - semestr				
№	Unit	Theme of Lecture	Hour	
5	Cardiovascular system	1.Introduction to angiology. Development and anomalies of the heart and vessels. Classification	2	According to the timetable
		2.Anatomy of the heart	2	According to the timetable
		3.Anatomy of Blood Vessels of the Head, Neck and Thoracic Cavity	2	According to the timetable
		4.Anatomy of Blood Vessels of the Abdominal and Pelvic Cavities	2	According to the timetable

		5.Anatomy of Blood Vessels of the upper limbs	2	According to the timetable
		6.Anatomy of Blood Vessels of the lower limbs	2	According to the timetable
		Total	**12**	
6	Central Nervous System	7.Introduction. General anatomy of the Central nervous system. Spinal cord. Tracts of spinal cord	2	According to the timetable
		8.Anatomy of the brainstem and the cerebellum	2	According to the timetable
		9.Anatomy of diencephalon and limbic system	2	According to the timetable
		10.Anatomy of the cerebral cortex	2	According to the timetable
		11.Anatomy of the internal structure of the cerebrum	2	According to the timetable
		12.Anatomy of the meninges, ventricles and dural sinuses	2	According to the timetable
		13.Anatomy of the sense organs	2	According to the timetable
		Total	**14**	
7	Peripheral Nervous System	14.Introduction. General anatomy of peripheral nervous system. Cervical plexus	2	According to the timetable
		15.Brachial plexus. Thoracic nerves	2	According to the timetable
		16.Lumbar plexus. Sacral plexus	2	According to the timetable
		17.Autonomic nervous system	2	According to the timetable
		18.Cranial nerves	2	According to the timetable
		Total	**10**	
		Total	**36**	

THEMATIC PLAN OF PRACTICAL CLASSES

I-semestr				
№	Unit	Theme of practical class	Hour	Date
1	Osteology	1.Anatomy Introduction. The General anatomy of a skeleton. Classification of bones	2	According to the timetable
		2.Development of bones and anomaly development of bones.	2	According to the timetable
		3.The bones of rib cage. Vertebral column	2	According to the timetable
		4.The bones of shoulder girdle and upper limbs.	2	According to the timetable
		5.The bones of pelvic girdle and lower limbs	2	According to the timetable
		6. Neurocranium	2	According to the timetable
		7. Viscerocranium	2	According to the timetable
		8.Unit control	2	According to the timetable
		Total	**16**	
2	Syndesmology	1.General anatomy of the joints. Classification	2	According to the timetable
		2.The joints of the rib cage	2	According to the timetable

		3.The joints of the vertebral column	2	According to the timetable
		4.The joints of the upper limbs	2	According to the timetable
		5.The joints of the pelvic girdle and knee joint	2	According to the timetable
		6.The joints of the leg and foot.	2	According to the timetable
		7.The joints of the skull	2	According to the timetable
		8.Unit control	2	According to the timetable
		Total	**16**	
3	Myology	1. Introduction. General anatomy of the muscles and fascias. Classification	2	According to the timetable
		2. The muscles and fascias of the head and face	2	According to the timetable
		3. The muscles and fascias of the neck	2	According to the timetable
		4. The muscles and fascias of the thorax and back	2	According to the timetable
		5. The muscles and fascias of the abdomen and pelvis	2	According to the timetable
		6.The muscles and fascias of the upper limbs	2	According to the timetable
		7. The muscles and fascias of the lower limbs	2	According to the timetable
		8. Unit control	2	According to the timetable
		Total	**16**	
		Total	**48**	

II-semestr				
№	Unit	Theme of practical class	Hour	Date
4	Splanchnology	1. Anatomy of oral cavity, Pharynx, Esophagus, Stomach	2	According to the timetable
		2. Anatomy of the small and large intestine, Liver, Pancreas and Gallbladder	2	According to the timetable
		3. Anatomy of Nasal Cavity, Larynx, Trachea and Bronchi	2	According to the timetable
		4. Anatomy of Lungs, Mediastinum and Pleura	2	According to the timetable
		5. Urinary system	2	According to the timetable
		6.Male Reproductive system	2	According to the timetable
		7. Female Reproductive system	2	According to the timetable
		8. Endocrine system	2	According to the timetable
		9. Unit control	2	According to the timetable
		Total	**18**	
5	Cardiovascular system	1. Introduction. General Anatomy of the Heart and Blood Vessels. Classification of vessels	2	According to the timetable
		2. Anatomy of the Heart	2	According to the timetable
		3. Blood Vessels of the Head and Neck	2	According to the timetable

		4. Blood Vessels of the Thoracic Cavity	2	According to the timetable
		5. Blood Vessels of the Abdominal Cavity	2	According to the timetable
		6. Blood Vessels of the Pelvic Cavity	2	According to the timetable
		7. Blood Vessels of the Upper Limbs	2	According to the timetable
		8. Blood Vessels of the Lower Limbs	2	According to the timetable
		9. Lymphatic System	2	According to the timetable
		10. Unit Control	2	According to the timetable
		Total	**20**	
6	Central Nervous System	1.Introduction. General anatomy of the Central nervous system. Development, features and anomalies	2	According to the timetable
		2. The Spinal cord	2	According to the timetable
		3. The Brainstem	2	According to the timetable
		4. The Cerebellum	2	According to the timetable
		5. The Diencephalon, the limbic system	2	According to the timetable
		6. The Cerebral cortex	2	According to the timetable
		7. The internal structure of the cerebrum	2	According to the timetable
		8. The meninges, ventricles and dural sinuses	2	According to the timetable
		9. Anatomy of the eye	2	According to the timetable
		10. Anatomy of the ear, the vestibular system	2	According to the timetable
		11. Unit Control	2	According to the timetable
		Total	**22**	
7	Peripheral Nervous System	1.Introduction. General anatomy of peripheral nervous system.	2	According to the timetable
		2.Cervical plexus	2	According to the timetable
		3. Brachial plexus.	2	According to the timetable
		4.Thoracic nerves. Dermatomes	2	According to the timetable
		5. Lumbar plexus	2	According to the timetable
		6.Sacral plexus	2	According to the timetable
		7. Autonomic nervous system	2	According to the timetable
		8. Cranial nerves I-VI	2	According to the timetable
		9. Cranial nerves VII-XII	2	According to the timetable
		10. Unit Control	2	According to the timetable
		Total	**20**	
		Total	**80**	

THEMATIC PLAN OF INDEPENDENT WORK OF STUDENTS

I-semestr				
№	Unit	Theme of independent work	Hour	Date
1	Osteology	1. Make the table of classification of bones	4	According to the timetable
		2. Make the table of vertebras anatomical features in each region	4	According to the timetable
		3.Make the table of differences between male and female pelves	4	According to the timetable
		4. Make the table of the bones of hand and foot	4	According to the timetable
		5. Draw the hip bone and mark all parts	4	According to the timetable
		6. Make the table of paranasal sinuses. Features, connections	4	According to the timetable
		7. Mark the names of importants parts of the internal skull base on the picture	4	According to the timetable
Total			**28**	
2	Syndesmology	1.Make the scheme of the joints of bones	4	According to the timetable
		2.Draw the projection lines of the rib cage	4	According to the timetable
		3.Write the ligaments of the vertebral column	4	According to the timetable
		4.The biomechanics of the shoulder and elbow joints	4	According to the timetable
		5.Make the table of differences betwenn shoulder and hip joints	4	According to the timetable
		6.Describe the temporo-mandibular joint	4	According to the timetable
		7.Describe the joints of the hand	4	According to the timetable
		8.Describe the joints of the foot	4	According to the timetable
Total			**32**	
3.	Myology	1. Make the table of differences between the mastication muscles and facial expression muscles	4	According to the timetable
		2. Draw and describe the triangles of the neck and fascias of the neck	4	According to the timetable
		3. Describe the structure of the diaphragm and its weak places	4	According to the timetable
		4. Write the walls of inguinal canal, its contents and the weak places of the abdomen	4	According to the timetable
		5. Describe the cubital fossa and anatomical snuffbox, its borders and contents	4	According to the timetable
		6. Describe the suprapiriformal and infrapiriformal foramens and their borders, contents	4	According to the timetable
		7. Describe the pelvic and urogenital diaphragm	4	According to the timetable
		8. Describe the femoral triangle, the contents of vascular and muscular lacunas	4	According to the timetable
		9. Describe the popliteal fossa and the adductor canal	4	According to the timetable
Total			**36**	

II-semestr

№	Unit	Theme of independent work	Hour	Date
4	Splanchnology	1. Write and Draw the Pharynx and it's structures on sagittal section	4	According to the timetable
		2. Draw the arrangement of the peritoneum stroke	4	According to the timetable
		3 Form the plate of comparing small and large intestine, Jejunum and Ileum	4	According to the timetable
		4. Draw the "Wonderful net" (Rete Mirable) of the Liver and its ligaments.	4	According to the timetable
		5. Draw the formation of bile excreting duct, Pancreas duct and sphincter of Oddi	4	According to the timetable
		6. Larynx cavity, vocal chords, vocal aperture	4	According to the timetable
		7. Draw the internal structure of the Kidney	4	According to the timetable
		8. Draw arrangement of blood supply of the kidney, wonderful net of the kidney.	4	According to the timetable
Total			**32**	
5	Cardiovascular system	1. Draw Circles of Blood Circulation	4	According to the timetable
		2. Conducting System of the Heart	4	According to the timetable
		3. Sketch the Willis Circle and provide a description	4	According to the timetable
		4. Draw Portocaval and Cava-caval Anastomoses	4	According to the timetable
		5. Outline the Position and Tributaries of the Thoracic Duct	4	According to the timetable
		6. Write about Arteries and Veins of Pelvic Organs	4	According to the timetable
		7. Arteries of the Hand, Palmar Arch	4	According to the timetable
		8. Vessels of the Sole	4	According to the timetable
Total			**32**	
6	Central Nervous System	1. Draw the cross section picture of spinal cord and formation of spinal nerves.	4	According to the timetable
		2. Draw and describe the ascending and descending tracts	4	According to the timetable
		3. Make the table of brainstem nuclei and their functions and locations	4	According to the timetable
		4. Draw the rhomboid fossa, its borders and contents	4	According to the timetable
		5. Describe the internal structure of cerebellum, nuclei and their functions	4	According to the timetable
		6. Write the cerebrospinal fluid, formation, function and connections. Subarachnoid cisterns.	4	According to the timetable
		7. Draw the thalamus, its nuclei and functions	4	According to the timetable
		8. Draw the hypothalamus, its nuclei and functions	4	According to the timetable
		9. Conducting tracts of the cerebrum	4	According to the timetable
		10. Draw and describe the optic tract, and its all components	4	According to the timetable
Total			**40**	
7		1. Draw and describe the reflex arc and its components	4	According to the timetable

	Peripheral Nervous System	2. Draw and describe phrenic nerve. Origin, structure and innervation	4	According to the timetable
		3. Draw and describe median nerve. Origin, structure and innervation	4	According to the timetable
		4. Draw and describe sciatic nerve. Origin, structure and innervation	4	According to the timetable
		5. Make the comparative tables of somatic and autonomic, sympathetic and parasympathetic NS	4	According to the timetable
		6. Describe structure, function and origin of enteric nervous system	4	According to the timetable
		7. Describe and draw schematically the oculomotor nerves	4	According to the timetable
		8. Draw the scheme of the facial nerve and its zones of innervation	4	According to the timetable
Total			**32**	
Total			**232**	

HISTOLOGY

THEMATIC PLAN OF LECTURES 1sem

№	Theme of lecture	Hours	Date
1	Methods of cytological and histological research, their significance for medical science and practice.	2	2.10
2	General histology. Histology of epithelial tissues and exocrine glands. Histogenesis, regeneration.	2	9.10
3	Histology of fibrous connective tissues. Histogenesis, regeneration. Histology of skeletal connective tissues. Histogenesis, regeneration.	2	16.10
4	General histology. Histology of muscle tissue. Histology of nervous tissue. Histogenesis, regeneration.	2	23.10
5	General embryology. Embryogenesis. The main stages of development of the vertebrate embryo.	2	30.10
6	Medical embryology. Embryogenesis.	2	6.11
	Total	12	

THEMATIC PLAN OF LECTURES 2 sem

№	Theme of lecture	Hours	Date
1	Cardiovascular system. Organs of haemopoiesis. Endocrine system	2	28.08
2	Respiratory system. Integumentary system.	2	4.09
3	Digestive system.	2	11.09
4	Urinary system.	2	18.09
5	Female reproductive system. Male reproductive system.	2	25.09
6	Nervous system. Sense organs.	2	2.10
	Total	12	

THEMATIC PLAN OF PRACTICAL CLASSES 1 sem

№	Theme of practical class	Tipe of class	Hours	Date
1	Methods of cytological and histological research, their significance for medical science and practice.	sem	2	2-7.10
2	General histology. Histology of epithelial tissues and exocrine glands. Histogenesis, regeneration.	Sem	2	9-14.10
3	The cell, its structural apparatus: synthetic, intracellular digestion, energy, cytoskeleton. Cell inclusions. Methods and techniques of microscopy. Stages of preparing a histological specimen.	Pract	2	23-28.10
4	General histology. Histology of blood and lymph. Hematopoiesis. Histogenesis, regeneration.	Sem	2	16.10-21.10
5	General histology. Histology of fibrous connective tissues. Histogenesis, regeneration.	Sem	2	30.10-4.11
6	General histology of tissues of general (epithelial, connective) and special significance (muscle, nervous).	Pract	2	6-11.11
7	General histology. Histology of skeletal connective tissues. Histogenesis, regeneration.	Sem	2	20-25.11
8	General histology. Histology of muscle tissue.	Sem	2	27.11-2.12
9	General histology. Histology of nervous tissue. Histogenesis, regeneration.	Sem	2	4-9.12
10	General histology of tissues of special significance.	Pract	2	11-16.12
11	Unit №1	pract	2	18-23.12
12	General embryology. Embryogenesis. The main stages of development of the vertebrate embryo.	Sem	2	25-30.12
13	Histology of extraembryonic organs. The importance of the chorion in the formation of the placenta.	Sem	2	2.01-6.01

14	Extraembryonic organs: amnion, serous membrane, yolk sac, allantois, chorion. Placenta.	Pract	2	8.01-13.01
15	UNIT №2	pract	2	15.01-20.01
	Total		30	

THEMATIC PLAN OF PRACTICAL CLASSES 2 sem

№	Theme of practical class		Hours	Date
1	Histology of the organs of the cardiovascular system.	Sem	2	28.08-2.09
2	Histology of blood, lymphatic vessels, heart.	Pract	2	28.08-2.09
3	Histology of haemopoiesis and immune response	sem	2	4.09-9.09
4	Histology of bone marrow, thymus, spleen, lymph nodes, lymphoid follicles of the mucous membranes.	Sem	2	4.09-9.09
5	Histology of the organs of the endocrine system.	Sem	2	11.09-16.09
6	Histology organs of the pituitary gland, thyroid and parathyroid glands, adrenal glands, endocrine islet of the pancreas.	Pract	2	11.09-16.09
7	Histology of skin and its derivatives.	Sem	2	18.09-23.09
8	Histology of thin and thick skin, hair, nail plate, sweat and sebaceous glands.	Pract	2	18.09-23.09
9	UNIT №3	pract	2	25.09-30.09
10	Histology of the respiratory system.	Sem	2	25.09-30.09
11	Histology of the nasal cavity, trachea, bronchi and respiratory part of the lung.	Pract	2	2.10-7.10
12	Histology of the digestive system. Digestive tube.	Sem	2	2.10-7.10
13	Histology of the mucous membrane of the oral cavity, tooth, esophagus, stomach, small and large intestine.	Pract	2	9.10-14.10
14	Histology of large digestive glands	sem	2	9.10-14.10
15	Histology of large salivary glands, liver, gallbladder, exocrine pancreas.	Pract	2	16.10-21.10
16	Histology of the urinary system.	Sem	2	16.10-21.10
17	Histology of the kidney, calyces, pelvis, ureter, bladder, urinary duct.	Pract	2	23.10-28.10
18	UNIT №4	pract	2	3.10-4.11
19	Histology of the male reproductive system.	Sem	2	6-11.11
20	Histology of the testicle, epididymis, vas deferens, prostate, seminal vesicles, bulbo-urethral glands.	pract	2	13.11-18.11
21	Histology of the organs of the female reproductive system.	sem	2	20-25.11
22	Histology of the ovary, oviduct, uterus, cervical canal, vagina, mammary gland.	Pract	2	4.12-9.12
23	Histology of the nervous system organs. Histology of organs feelings.	Sem	2	11.12-16.12
24	Histology of the nerve, spinal ganglia, nerve endings, spinal cord, cerebral cortex, cerebellum, meninges.	Pract	2	18-23.12
25	Histology of the membranes of the eye, cornea, retina, olfactory epithelium, organs of hearing and balance.	Pract	2	25-30.12
26	UNIT №5	pract	2	2.01-6.01

	Total		52	

THEMATIC PLAN OF INDEPENDENT WORK OF STUDENTS

1st semestr				
No.	Unit name	Theme of independent work	Hour	Date
1	General histology and cytology.	1. Make a summary using Internet resources on the topic of methods of histological and cytological research. Make a table: Classification of organelles depending on their structure: membrane, non-membrane.	2	According to the timetable
		2. Make tables: Classification of integumentary epithelial tissues by sources of development, by structure. Make a sketch of the exocrine glands based on their structure and type of secretion.	2	According to the timetable
		3. Make a table of blood hemogram indicators. Draw a diagram of hematopoiesis.	2	According to the timetable
		4. Make a table: Differences in the structure of the intercellular substance of different types of connective tissue. Draw the structure of cells of loose fibrous connective tissue and describe their brief characteristics depending on their function.	2	According to the timetable
		5. Make a table: Differences in the structure of the intercellular substance of different types of connective tissue.	2	According to the timetable
		6. Make a table: Differences in the structure of the intercellular substance of different types of connective tissue.	2	According to the timetable
		7. Make a note about the anatomical narrowings of the ureter.	2	According to the timetable
		8. Make a table: Differences in the structure of the intercellular substance of different types of connective tissue.	2	According to the timetable
		9. Make sketches and a brief description of the ascending and descending pathways.	2	According to the timetable
		Total:	**18**	
2	General embryology	1. Make a table: Embryonic rudiments of the embryo, differentiated from the corresponding germ layers: ectoderm, endoderm, mesoderm.	3	According to the timetable
		2. Fill out the table: The main stages of embryogenesis and their significance. Make a sketch and brief description of the types of cleavage in vertebrates depending on the types of oocytes.	3	According to the timetable
		3. Conduct a comparative analysis of provisional organs in birds, mammals and humans. Make a table and mark with a "+" sign the characteristic provisional organs and their functions.	3	According to the timetable
		4. Make a table about the critical periods of embryogenesis and the corresponding periods in days or weeks. Draw the structure placenta of hemochorial type.	3	According to the timetable
		Total:	**12**	
		Total:	**30 hours**	
II semester				
5	Private histology	1. Make a summary using Internet resources on the topic: Sources and course of embryonic development of the organs of the cardiovascular system. Make a sketch of the histological structure of the walls of blood vessels and their short description.	3	According to the timetable

		2. Make a summary using Internet resources on the topic: Sources and course of embryonic development of hematopoietic organs. Make a sketch of the histological structure of the red and yellow bone marrow and a short description of them.	3	According to the timetable
		3. Make a summary using Internet resources on the topic: Sources and course of embryonic development of the organs of the endocrine system. Make a sketch of the histological structure of the various parts of the pituitary gland and a short description of them.	3	According to the timetable
		4. Make a summary using Internet resources on the topic: Sources and course of embryonic development of the skin and its derivatives. Draw the layer-by-layer histological structure of hair.	3	According to the timetable
		5. Make a summary using Internet resources on the topic: Sources and course of embryonic development of the respiratory system. Draw the layer-by-layer structure of the air-blood barrier of the lung and its short description.	4	According to the timetable
		6. Make a summary using Internet resources on the topic: Sources and course of embryonic development of the digestive tract organs. Make a sketch of the histological structure of the wall of various parts of the stomach and a short description of them.	4	According to the timetable
		7. Make a summary using Internet resources on the topic: Sources and course of embryonic development of large digestive glands. Draw a general diagram of the structure of large digestive glands and a short description of the sections of the glands.	4	According to the timetable
		8. Make a summary using Internet resources on the topic: Sources and course of embryonic development of the organs of the urinary system. Draw the layer-by-layer structure of the filtration barrier in the renal nephron corpuscle and its short description.	4	According to the timetable
		9. Make a note using Internet resources on the topic: Sources and course of embryonic development of the organs of the male reproductive system. Draw the layer-by-layer structure of the blood-testicular barrier in the convoluted tubules of the testis and its short description.	4	According to the timetable
		10. Make a note using Internet resources on the topic: Sources and course of embryonic development of the organs of the female reproductive system. Draw the layer-by-layer structure of the blood-follicular barrier in the ovarian follicles and its short description.	4	According to the timetable
		11. Make a summary using Internet resources on the topic: Sources and course of embryonic development of the nervous system organs. Draw the layer-by-layer structure of the blood-brain barrier in the brain and its short description.	4	According to the timetable
		12. Make a summary using Internet resources on the topic: Sources and course of embryonic development of the senses: smell, vision, hearing and balance. Draw the layer-by-layer histological structure of the retina and its short description.	4	According to the timetable
		Total:	**44**	
		Total:	**74**	

Recommended reading for the discipline:

Basic:

№	Authors	Name	Publish Year	Publisher	Amount in Library
1	Abaeva T.S.	Textbook of Human Anatomy	2017	Нео Принт Бишкек	250
2	Agur A.M.	Basic anatomy and examination of the eye	2013	Wolters Kluwer	120
3	Beg K.	Essence of anatomy	2013	CBS Publishers & Distributors Pvt Ltd	1
4	Chaurasia B.D.	Human anatomy vol-1	2013	CBS Publishers & Distributors Pvt Ltd	31
5	Chaurasia B.D.	Human anatomy vol-2	2016	CBS Publishers & Distributors Pvt Ltd	27
6	Chaurasia B.D.	Human anatomy vol-3	2013	CBS Publishers & Distributors Pvt Ltd	25
7	Netter F.H.	Atlas of Human Anatomy	2019	Saunders Elsevier	50
8	Junqueira L.S.	Basic Histology Text and Atlas	2021	McGraw-Hill	48
9	Siddiqui L.H.	Medical Histology	2004	Medtech	86
10	Eroschenko V.P.	Atlas of Histology with Functional Correlations	2013	Wolters Kluwer	51
11	Garg K.	Textbook of human histology	2011	CBS Publishers & Distributors Pvt Ltd	3

Additional:

№	Authors	Name	Publish Year	Publisher	Amount in Library
12	Romanes G.J.	Cunningham Manual of practical anatomy	2004	Oxford University press	1
13	Singh I.	Textbook of Human Histology	2014	Jaypee Brothers Medical Publishers Pvt Ltd	25
14	Young B.	Functional Histology	2000	Elsevier Ltd	3
15	Prakash G.B.	Inderbir Singh Human Histology	2016	Jaypee Brothers Medical Publishers Pvt Ltd	3

Grading policy and procedures for all types of work

For the period of studying the discipline, the student gains points for the relevant parameters (per unit):

- current score - 40 points
- independent work - 20 points
- unit/ module – 40 points

- the overall score - 100 (40+40+20)

For violations of t**he conduct policy**, the overall discipline score will be reduced by a maximum of 10 points.
For violations of **the academic ethics policy**, the overall score in the discipline is reduced by a maximum of 10 points.

Grading system for student's achievements

Grading criteria per discipline				
Maximum score	Intervals			
	«unsatisfactory»	«satisfactory»	«good»	«excellent»
Current control - 40	0-23	24-30	31-35	36-40
Interval description	Does not know most of the relevant section of the material being studied, presents the material erratically and uncertainly	Presents the material incompletely and allows for inaccuracies in defining concepts	Gives an answer that meets the same requirements as for an "excellent" rating, but makes 2-3 errors	Completely presents the studied material, gives correct definitions of concepts;
Independent work - 20	0-11	12-15	16-17	18-20
Interval description	The topic is not revealed, does not correspond to the plan, indicates superficial knowledge	The material is presented quite logically, but there are some irregularities in the sequence of expression of thoughts;	2-3 inaccuracies in the content, minor deviations from the topic are allowed	Excellent knowledge of the topic, targeted analysis of the material, correct conclusions and generalizations;
Control work (module) - 20	0-23	24-30	31-35	36-40
Interval description	Number of correct answers to MCQs –60% or less	Number of correct answers to MCQs – 60-75 %	Number of correct answers to MCQs – 76-89%	Number of correct answers to MCQs – 90% and above

Exam 100 points.

Grand total score for the discipline (average score for units max 100 + exam score max 100)/2 = 100 points
Grand total score for the discipline put into the record book.

Conduct Policy: (lateness, absence, behavior in the auditorium, late submission of work).
- Punctuality and completion of tasks.
- Mandatory attendance of classes.
- Attending class in a clean medical uniform.
- Eliminating conversations on a cell phone in the classroom.
- Active participation in the learning process.
- Doing homework on time.
- Academic detention at the time specified by the teacher.

For violations of the Conduct Policy, the total points for discipline might be reduced to 1-10 points.

Academic Ethics Policy.
- Be tolerant, respect the opinions of others.
- Formulate objections in the correct form.
- Constructively support feedback in all classes.
- Plagiarism and other forms of dishonest work are unacceptable. Plagiarism includes the following: the absence of references when using printed and electronic materials, quotes, thoughts and works of other authors or students.
- Prompting and cheating during tests, exams, classes is unacceptable as well as passing an exam for another student, unauthorized copying of materials.

For violations of the Academic Ethics Policy, the total points for the discipline may be reduced to 1-10 points.

Guidelines for the lessons of the discipline

Anatomy

Unit 1 Osteology

Key questions covered in lesson 1. Anatomy Introduction. The General anatomy of a skeleton. Classification of bones.

1.Axes and planes of the human body.
2.Skeleton and its parts.
3. Bone structure. Bone shapes. Classification of bones.
4. Structures of vertebrae. Features of the structure of the vertebrae of various parts of the vertebral column.
5. The structure of the sternum.
6. Rib structure and classification.
7. The structure of the sacrum.

Recommended reading for the lesson: [1,2,4,7]

Key questions covered in lesson 2. Development of bones and anomaly development of bones.

1. Development of bones
2. Ossification of bones
3. Anomalies during the development.

Recommended reading for the lesson: [1,2,4,7]

Key questions covered in lesson 3. The bones of rib cage. Vertebral column.

1. Structures of vertebrae
2. Features of the structure of the vertebrae of various parts of the vertebral column
3. The structure of the sternum
4. Rib structure and classification
5. The structure of the sacrum and coccyx.

Recommended reading for the lesson: [1,2,4,7]

Key questions covered in lesson 4. The bones of shoulder girdle and upper limbs.

1. Structure of the shoulder girdle bones
2. Structure of arm bone
3. Structure of forearm bones
4. Bones of the hand.

Recommended reading for the lesson: [1,2,4,7]

Key questions covered in lesson 5. The bones of pelvic girdle and lower limbs.

1. Anatomy of the ilium.
2. Anatomy of the pubic bone.
3. Anatomy of the ischium.
4. Anatomy of the femur.
5. Anatomy of the tibia.
6. Anatomy of the the fibula.
7. Anatomy of the tarsus.
8. Anatomy of the metatarsus.
9. Anatomy of the bones of the toes.

Recommended reading for the lesson: [1,2,4,7]

Key questions covered in lesson 6. Neurocranium.

1. Parts and foramens of occipital bone.
2. Parts of parietal bone.
3. Parts of frontal bone.
4. Parts of ethmoid bone.
5. Parts of temporal bone
6. Canals of temporal bone
7. Parts of sphenoid bone
8. Canals of sphenoid bone.

Recommended reading for the lesson: [1,2,4,7]

Key questions covered in lesson 7. The viscerocranium.

1. Anatomy of orbit.
2. Anatomy of nasal bone
3. Anatomy of zygomatic bones
4. Anatomy of maxilla
5. Anatomy of mandibular
6. Anatomy of the vomer
7. Anatomy of the lacrimal bones
8. Anatomy of the inferior nasal conchae
9. Anatomy of the palatine bone

10. Anatomy of the hyoid bone.
Recommended reading for the lesson: [1,2,4,7]
Key questions covered in lesson 7. Module.
1. The science of Human anatomy.
2. Methods of anatomical study
3. Constitution. Norm. Anomalies.
4. The Following classification of bone.
5. The vertebral column. The cervical vertebrae.
6. Thoracic vertebrae.
7. The lumbar vertebrae.
8. The sacral, coccyge vertebrae.
9. The ribs. The sternum.
10. The clavicle. The scapula.
11. The Humerus.
12. The ulna. The radius.
13. The bones of the Hand.
14. The pelvic girdle. The ilium.
15. The pubis. The ischium.
16 The femur. The patella.
17. The tibia. The fibula
18. The bones of the foot.
19. The occipital bone. The sphenoid bone.
20. The temporal bone.
21. The parietal bone. The frontal bone. The ethmoid bone.
22. The bones of viscerolcranium.
23. The skull as a whole.
24. The orbits. The anterior bony aperture of nose.
24. The temporal and infratemporal fossa.
25. The pterygopalatine fossa.
26. The external and internal structure of the skull.
27. Age features of the skull.
Recommended reading for the lesson: [1,2,4,7]
Unit 2 Syndesmology
Key questions covered in lesson 1. General anatomy of the joints. Classification.
1. General anatomy of the joints
2. Types of the joints
3. Classification of the joints
4. Structure of synovial joint cavity.
5. Supporting structures of joint.
6. Age features of joints.

Recommended reading for the lesson: [1,2,4,7]
Key questions covered in lesson 2. The joints of the thorax.
1. Sternoclavicular joint
2. Connectings 1 rib with sternum
3. Thorax as a whole
4. Joints of sternum
5. Ligaments of the spine.

Recommended reading for the lesson: [1,2,4,7]
Key questions covered in lesson 3. The joints of the vertebral column.
1. Regions of spinal column.
2. Articulations and ligaments of spine.
3. Spinal column curvatures.
4. Structure of intervertebral disc.

Recommended reading for the lesson: [1,2,4,7]
Key questions covered in lesson 4. The joint of upper limb.
1. Articulations and ligaments of upper limbs.
2. Shoulder joint components
3. Elbow joint components
4. Wrist joint components

Recommended reading for the lesson: [1,2,4,7]
Key questions covered in lesson 5. The joints of the pelvic girdle and knee joint.
1. Articulations and ligaments of the pelvic girdle and knee joint

2. Hip joint components
3. Knee joint components

Recommended reading for the lesson: [1,2,4,7]

Key questions covered in lesson 6. The joints of the leg and foot.

1. Articulations of the crural region.
2. Structure of talocrural articulation.
3. Movements of the leg joints.
4. Arches of the foot.

Recommended reading for the lesson: [1,2,4,7]

Key questions covered in lesson 7. The joints of the skull.

1. Articulations of the skull
2. Types of articulations of the skull
3. Temporo- mandibular joint
4. Types of the sutures
5. Atlanto- occipital joint.

Recommended reading for the lesson: [1,2,4,7]

Key questions covered in lesson 8. Module.

1. Schematical representation of bone joints.
2. Joints between the vertebrae. Joints between the vertebral arches.
3. Joints between the sacrum and coccyx.
4. The vertebral column as whole
5. The joints of the shoulder girdle.
6. The shoulder joint.
7. The elbow joint.
8. Articulation between the forearm bones.
9. Joints of the Hand bones.
10. Joints of the pelvic bones.
11. The pelvic as a whole.
12. The Hip joint
13. The Knee joint.
14. Joints between the leg bones.
15. Joints of the bones of the foot.
16. The foot as a whole.
17. Articulations of the skull
18. Types of articulations of the skull
19. Temporo- mandibular joint
20. Types of the sutures
21. Atlanto- occipital joint.

Recommended reading for the lesson: [1,2,4,7]

Unit 3 Myology

Key questions covered in lesson 1.: Introduction. General anatomy of the muscles and fascias. Classification.

1. General anatomy of the muscles.
2. Types of muscles
3. Types of fascias
4. Classification of muscles and fascias

Recommended reading for the lesson: [1,2,4,5,7]

Key questions covered in lesson 2. The muscles and fascias of the head and face.

1. Classification head and face muscles.
2. Fascias head and face region.
3. Facial expression muscles.
4. Mastication muscles.

Recommended reading for the lesson: [1,2,4,5,7,]

Key questions covered in lesson 3. The muscles and fascias of the neck.

1. Classification of the neck muscles.
2. Fascias of the neck region.
3. Superficial muscles of the neck.
4. Deep muscles of the neck.
5. Triangles of the neck.

Recommended reading for the lesson: [1,2,4,5,7]

Key questions covered in lesson 4. The muscles and fascias of the thorax and back.

1. Classification of the thorax and back muscles.
2. Superficial and proper muscles of the thorax.

3. Superficial and deep muscles of the back.

Recommended reading for the lesson: [1,2,4,5,7]

Key questions covered in lesson 5. The muscles and fascias of the abdomen and pelvis.

1. Classification of the abdomen and pelvic muscles.
2. Anterior and lateral and posterior muscles of the abdomen.
3. External and internal muscles of the pelvis.

Recommended reading for the lesson: [1,2,4,5,7]

Key questions covered in lesson 6. Muscles and fascia of the upper limb.

1. Classsification of upper limb muscles
2. Muscles of shoulder girdle
3. Anterior and posterior muscles of arm
4. Anterior and posterior muscles of forearm
5. Hand muscles.

Recommended reading for the lesson: [1,2,4,5,7]

Key questions covered in lesson 7. Muscles and fascia of the lower limb.

1. Classification of lower limb muscles
2. Muscles of pelvic girdle
3. Anterior, posterior and medial muscles of thigh
4. Anterior, posterior and lateral muscles of leg
5. Foot muscles.

Recommended reading for the lesson: [1,2,4,5,7]

Key questions covered in lesson 8. Module.

1. General anatomy of the muscles.
2. Types of muscles
3. Types of fascias
4. Classification of muscles and fascias
5. Classification head and face muscles.
6. Fascias head and face region.
7. Facial expression muscles.
8. Mastication muscles.
9. Classification of the neck muscles.
10. Fascias of the neck region.
11. Superficial muscles of the neck.
12. Deep muscles of the neck.
13. Triangles of the neck.
14. Classification of the thorax and back muscles.
15. Superficial and proper muscles of the thorax.
16. Superficial and deep muscles of the back.
17. Classification of the abdomen and pelvic muscles.
18. Anterior and lateral and posterior muscles of the abdomen.
19. External and internal muscles of the pelvis.
20. Classsification of upper limb muscles
21. Muscles of shoulder girdle
22. Anterior and posterior muscles of arm
23. Anterior and posterior muscles of forearm
24. Hand muscles.
25. Classification of lower limb muscles
26. Muscles of pelvic girdle
27. Anterior, posterior and medial muscles of thigh
28. Anterior, posterior and lateral muscles of leg
29. Foot muscles.

Recommended reading for the lesson: [1,2,4,5,7]

Unit 4 Splanchnology

Key questions covered in lesson 1. Anatomy of oral cavity, Pharynx, Esophagus and Stomach.

1. The parts of digestive canal.
2. The parts of oral cavity
3. The structure of the teeth.
4. The parts of pharynx
5. The Structure of the esophagus
6. The course of the peritoneum.
7. The structure walls, parts of the stomach.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 2. Anatomy of the small and large intestine, Liver, Pancreas and Gallbladder.

1. The parts of the small intestine.
2. The parts of the large intestine.
3. Thr feature of the large intestine.
4. The artries, venous blood, lymphatic vessels, innarvation of the small and large intestine.
5. The parts, structure and blood supply of the pancreas
6. The parts, structure, lobules and blood supply of the liver.
7. The parts of gall bladder
8. The parts of rectum.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 3. Anatomy of Nasal Cavity, Larynx, Trachea and Bronchi.

1. The walls of the nasal cavity.
2. Structure of the larynx.
3. Structure of the trachea.
4. Structure of the bronchi.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 4. Anatomy of Lungs, Mediastinum and Pleura.

1. Structure of the lungs.
2. Mediastinum and its contents
3. The pleura, parts of pleura.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 5. Urinary system.

1. The urinary system.
2. The kidneys. Topography, structure of the kidney. Layers of kidney.
3. Nephron.
4. The fornical apparatus of the calyces.
5. Development of the kidneys, anomalies.
6. Structure, parts of the ureter.
7. The urinary bladder, trigonum vesicae.
8. Blood supply, lymph drains, nerve supply of the organs of urinary system.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 6. Male reproductive system.

1. The structure of the testis
2. The parts of the epidydymis
3. The prostate, parts, zones
4. The external genitals organs.
5. The male urethra, parts, sphincters.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 7. Female reproductive system.

1. The feature structure of the mucous coat of the uterus.
2. The parts, structure of wall of the uterine tube.
3. The uterus, structure, parts, relation of the peritoneum.
4. The vaginae, fornixs and vestibulum.
5. The external genitals organs.
6. The male uretra, parts, sphincters.

Key questions covered in lesson 8. Endocrine system.

Recommended reading for the lesson: [1,2,5,6,7,12]

1. The structure of the endocrine system.
2. Topography of the given organs.
3. Classification of the endocrine system organs.
4. Features characteristic for the organs of the endocrine system.

Recommended reading for the lesson: [1,2,5,6,7,12]

Key questions covered in lesson 9. Module.

1.The parts of digestive canal.
2.The parts of oral cavity
3.The structure of the teeth.
4.The parts of pharynx
5.The Structure of the esophagus
6.The course of the peritoneum.
7.The structure walls, parts of the stomach.
8.The parts of the small intestine.
9.The parts of the large intestine.

10.The feature of the large intestine.
11.The arteries, venous blood, lymphatic vessels, innervation of the small and large intestine.
12.The parts, structure and blood supply of the pancreas
13.The parts, structure, lobules and blood supply of the liver.
14.The parts of gall bladder
15.The parts of rectum.
16.The walls of the nasal cavity.
17.Structure of the larynx.
18.Structure of the trachea.
19.Structure of the bronchi.
20.Structure of the lungs.
21.Mediastinum and its contents
22.The pleura, parts of pleura.
23.The urinary system.
24.The kidneys. Topography, structure of the kidney. Layers of kidney.
25.Nephron.
26.The fornical apparatus of the calyces.
27.Development of the kidneys, anomalies.
28.Structure, parts of the ureter.
29.The urinary bladder, trigonum vesicae.
30.Blood supply, lymph drains, nerve supply of the organs of urinary system.
31.The structure of the testis
32.The parts of the epidydymis
33.The prostate, parts, zones
34.The external genitals organs.
35.The male urethra, parts, sphincters.
36.The structure of the endocrine system.
37.Topography of the given organs.
38.Classification of the endocrine system organs.
39.Features characteristic for the organs of the endocrine system.
Recommended reading for the lesson: [1,2,5,6,7,12]

Unit 5 Cardiovascular system

Key questions covered in lesson 1. Introduction. General Anatomy of the Heart and Blood Vessels. Classification of vessels.

1. General anatomy of the heart and blood vessels
2. Types of vessels
3. Functions of vessels
4. Classification of vessels

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 2. Anatomy of the Heart.

1. The surfaces of the heart, position.
2. The chambers of the heart.
3. The main vessels of the heart.
4. The brief development of the heart.
5. Conduction system of the heart.
6. Lesser vessels circulation, greater circulation.
7. The structure of the heart wall.
8. Structural features of the myocardium of the atria and ventricles.
9. Pericardium, its structure, pericardial sinuses.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 3. Blood Vessels of the Head and Neck

1. External carotid artery and its branches.
2. Internal carotid artery and its branches
3. Vertebral artery and its branches
4. Internal jugular vein and its branches.
5. External jugular vein and its branches.
6. Sinuses of the brain.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 4. Blood Vessels of the Thoracic Cavity.

1. Ascending aorta, branches
2. Aortic arch, branches

3. Visceral branches of the thoracic aorta.
4. Parietal branches of the thoracic aorta.
5. Paired branches of the thoracic aorta.
6. Unpaired branches of the thoracic aorta.
7. Superior vena cava.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 5. Blood Vessels of the Abdominal Cavity.

1. Visceral branches of the abdominal aorta.
2. Parietal branches of the abdominal aorta.
3. Paired branches of the abdominal aorta.
4. Unpaired branches of the abdominal aorta.
5. Inferior vena cava.
6. Vena portae.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 6. Blood Vessels of the Pelvic Cavity.

1. Internal and external iliac arteries
2. Internal and external iliac veins.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 7. Blood Vessels of the Upper Limbs.

1. Arteries of the upper limb.
2. Veins of the upper limb.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 8. Blood Vessels of the Lower Limbs.

1. Arteries of the lower limb.
2. Veins of the lower limb.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 9. Lymphatic System.

1. Lymph vessels and nodes of the head.
2. Lymph vessels and nodes in the neck.
3. Lymph vessels and nodes of thorax and abdomen
4. Lymph vessels and nodes of the upper limb.
5. Lymph vessels and nodes of the lower limb.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 10. Module.

Branches of the arch of aorta. The common carotid artery.

1. The heart. Anatomy, function, blood supply.
2. The branches of the aortic arch.
3. The branches of thoracic aorta.
4. The external carotid artery.
5. The internal carotid artery.
6. The subclavian artery. The subclavian vein.
7. The external jugular vein. The internal jugular vein. The lymphatic system of the head and neck.
8. The abdominal aorta, branches.
9. Inferior vena cava. Portal vein.
10. Lymphatic system, classification.
11. Lymph nodes of the head, neck.
12. Lymph nodes of the upper limb.
13. Lymph nodes of abdomen.
14. Lymph nodes of the lower limb.

Recommended reading for the lesson: [1,2,5,6,7]

Unit 6 Central Nervous System

Key questions covered in lesson 1. Introduction. General anatomy of the Central nervous system. Development, features and anomalies.

1. Classifications of nerves system.
2. Structures of nervous system.
3. Development of nervous system
4. Anomalies of nervous system.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 2. The Spinal cord.

1. Anatomical structures of the spinal cord
2. Topography of the grey matters.

3. Topography of the white matters.
4. To define the spinal cord segment.
5. To draw the scheme cross section of spinal cord.
6. The conducting tracts of the spinal cord.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 3. The Brainstem.

1. The parts of the brain stem.
2. Development of the brainstem.
3. External and internal structures of the medulla oblongata.
4. External and internal structures of the pons.
5. External and internal structures of the midbrain

Recommended reading for the lesson: [1,2,5,6,7].

Key questions covered in lesson 4. The Cerebellum.

1. The lobes of the cerebellum.
2. Development of the cerebellum.
3. External and internal structures of the cerebellum.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 5. The Diencephalon.

1. The parts of the Diencephalon.
2. Development of the diencephalon.
3. External and internal structures of the thalamus.
4. External and internal structures of the hypothalamus.
5. External and internal structures of the epithalamus.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 6. The Cerebral Cortex.

1. The lobes of the brain.
2. Sulci, gyri of the telencephalon.
3. Centres of the cerebral cortex.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 7. The internal structure of the cerebrum.

1. The basal ganglia of the brain
2. The internal capsule and its parts
3. The corpus callosum and its parts
4. The white matter structures
5. The conducting tracts of the cerebrum.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 8. The meninges, ventricles and dural sinuses.

1. The meninges and the spaces between them.
2. The ventricles and their connections, functions and significance
3. The dural sinuses and their functions
4. The cerebrospinal fluid and its function, significance and pathway.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 9. Anatomy of the eye.

1. The organ vision (eye) and the accessory apparatus of the eye.
2. The visual tract and it’s all compartments
3. The center of vision.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 10. Anatomy of the ear, the vestibular system.

1. The organ of hearing: the external, middle, internal ear.
2. The structure of the auditory analyser.
3. The structure of vestibular system.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 11. Module.

1. Classifications of nerves system.
2. Structures of nervous system.
3. Development of nervous system
4. Anomalies of nervous system.
5. Anatomical structures of the spinal cord
6. Topography of the grey matters.
7. Topography of the white matters.
8. To define the spinal cord segment.
9. To draw the scheme cross section of spinal cord.

10. The conducting tracts of the spinal cord.
11. The parts of the brain stem.
12. Development of the brainstem.
13. External and internal structures of the medulla oblongata.
14. External and internal structures of the pons.
15. External and internal structures of the midbrain.
16. The lobes of the cerebellum.
17. Development of the cerebellum.
18. External and internal structures of the cerebellum.
19. The parts of the Diencephalon.
20. Development of the diencephalon.
21. External and internal structures of the thalamus.
22. External and internal structures of the hypothalamus.
23. External and internal structures of the epithalamus.
24. The lobes of the brain.
25. Sulci, gyri of the telencephalon.
26. Centres of the cerebral cortex.
27. The basal ganglia of the brain
28. The internal capsule and its parts
29. The corpus callosum and its parts
30. The white matter structures
31. The conducting tracts of the cerebrum.
32. The meninges and the spaces between them.
33. The ventricles and their connections, functions and significance
34. The dural sinuses and their functions
35. The cerebrospinal fluid and its function, significance and pathway.
36. The organ vision (eye) and the accessory apparatus of the eye.
37. The visual tract and it's all compartments
38. The center of vision.
39. The organ of hearing: the external, middle, internal ear.
40. The structure of the auditory analyser.
41. The structure of vestibular system.

Recommended reading for the lesson: [1,2,5,6,7]

Unit 7 Peripheral Nervous System

Key questions covered in lesson 1. Introduction. General anatomy of peripheral nervous system.

1. Origin, structure and function of spinal nerves.
2. Nerve plexuses

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 2. Cervical plexus.

1. Formation of the cervical plexus.
2. Cutaneus and motor branches of the cervical plexus.
3. Mixed branches of the cervical plexus.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 3. Brachial plexus.

1. Formation of the brachial plexus.
2. Short branches of brachial plexus
3. Long branches of the cervical plexus.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 4. Thoracic nerves. Dermatomes.

1. Formation thoracic nerves
2. Zones of innervtion of thoracic nerves
3. Dermatomes

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 5. Lumbar plexus.

1. The formation and zone innervation of the lumbar plexus.
2. Zones of innervation of femoral nerve
3. Zones of innervation of obturator nerve.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 6. Sacral plexus.

1. Formation of the sacral plexus and zone innervation of the short branches
2. Formation of the long branches of the sacral plexus.
3. Zone innervation of the sciatic nerve.

4. Coccygeal plexus.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 7. Autonomic nervous system.
1. Origin, structure and function of autonomic nervous system
2. Features, differences of autonomic and somatic NS
3. Features, differences of sympathetic and parasympathetic NS.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 8. The cranial nerves I-VI.
1. Motor cranial nerves III, IV, VI
2. Sensory cranial nerves I, II
3. Mixed cranial nerves V.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 9. The cranial nerves VII-XII.
1. Motor cranial nerves XI, XII
2. Sensory cranial nerves VIII
3. Mixed cranial nerves VII, IX
4. Vagus nerve.

Recommended reading for the lesson: [1,2,5,6,7]

Key questions covered in lesson 10. Module.
1. The spinal nerves. Cervical plexus. Formation. Zone innervation.
2. The short branches of brachial plexus.
3. The median nerve of brachial plexus
4. The ulnar nerve of brachial plexus
5. The radial nerve of brachial plexus
6. The musculocutaneus nerve of brachial plexus.
7. The short branches of sacral plexus.
8. The long branches of the sacral plexus.
9. The olfactory nerve. The optic nerve.
10. The occulomotor nerve.
11. The trochlear nerve.
12. The ophthalmic nerve of trigeminal nerve.
13. The maxillary nerve of trigeminal nerve.
14. The mandibular nerve of trigeminal nerve.
15. The abducens nerve.
16. The Facial nerve.
17. Auditory nerve.
18. Glossopharyngeal nerve.
19. Vagus nerve.
20. Accessory nerve.
21. Hypoglossal nerve.
22. The parasympathetic system.
23. The sympathetic system.

Recommended reading for the lesson: [1,2,5,6,7]

Histology

Key questions covered in Unit 1
1. Cytology, histology, embryology and their meaning for the medicine. Methods of research in histology and embryology. Cell. Cytoplasm. Chemical and morph-functional characteristic. Structural components. Cytolemma (cell membrane). Structure, function.
2. Types of cell junction.
3. Cell organelles and inclusions. Organelles. Morpho-functional classification. Structure and
4. General organelles: Golgi apparatus, endoplasmatic reticulum, mitochondria.
5. General membranous organelles: lysosomes, their types, structure, function.
6. General non-membranous organelles: ribosomes, centrioles, microfilaments, microtubules.
7. Special organelles: myofibrils, neurofibrils, tonofibrils, microvilli, cilia, synaptic vesicles.
8. Structure and function.
9. Cell nucleus: nucleolemma, chromatin, nucleoli, nucleoplasm.
10. Nucleus. Nuclear membrane. Structure, function.
11. Chromatin, chromosomes. Types, structure, function.
12. Nucleolus. Nucleolar components. Structure, function.

13. Non-cellular structures: symplast, synsytia, intercellular substance.
14. Cell cycle. Periods of interphase. Mitosis. Growth, differentiation, old and death of cell.
15. Epithelium tissue. Classification. Morpho-functional characteristic. Covering epithelia.
16. Structure, function, regeneration.
17. Glandular epithelium. Classification. Structure, function.
18. Glandular cells. Morphology of secretory cycle.
19. Role of blood cells and cells of connective tissue in immunological reactions of organism. Macrophages, T- and B-lymphocytes, plasma cells. Structure, histochemical characteristic and function.
20. Blood. Plasma and blood cells, their classification. Hemogram and leukocyte formula.
21. Regeneration.
22. Hemopoiesis. Embryonal and postnatal hemopoiesis.
23. Erythrocytes. General characteristic. Erythrocytopoiesis.in embryonic and postnatal periods.
24. Erythrocytopoiesis Erythrocytes: number, types, structure, function, life span.
25. Leucocytes. Classification. General characteristic. Granulocytopoiesis.
26. Leukocytes. Classification. Number, structure, function, life span.
27. Granulocytopoiesis. Development in embryonal and postnatal periods.
28. Granulocytes. General characteristic. Granulocytopoiesis.
29. Neutrophils. Development in embryonal and postnatal periods.
30. Neutrophils: number, structure, types, function, life span.
31. Eosinophils. Development in embryonal and postnatal periods.
32. Eosinophils: number, structure, types, function, life span.
33. Basophiles. Development in embryonal and postnatal periods.
34. Basophiles: number, structure, function, life span.
35. Lymphocytes. General characteristic. Lymphocytopoiesis.
36. Lymphocytes: number, types, structure, function, life span.
37. Monocytopoiesis in embryonal and postnatal periods.
38. Monocytes: number, types, structure, function, life span.
39. Monocytes: number, types, structure, function, life span.
40. Thrombocytes. General characteristic. Thrombocytopoiesis.
41. Thrombocytes: number, structure, varieties, function, life span.
42. Immunity. Types. Role of blood cells in the immunity.
43. Cartilage tissue. Classification. Cells and intercellular substance. Histogenesis.
44. Hyaline cartilage. Development and growth. Structure and function. Regeneration.
45. Elastic and fibrous cartilage. Development, distribution, structure, function.
46. Bone tissue. Development and growth of bones. Regeneration. Cells and intercellular substance.
47. Bone tissue. Morpho-functional characteristic, classification. Lamellar bone tissues: compact and spongy. Development, structure, function.

Recommended reading for the lesson: [8,9,10,11]

Key questions covered in Unit 2.

1. Muscle tissue. Classification. Morpho-functional characteristic. Histogenesis, structure, function. Regeneration. Smooth muscle. Development, types, structure, function and regeneration.
2. Skeletal muscle. Histogenesis and regeneration. Structure and function.
3. Cardiac muscle. Development, structure, function. Regeneration.
4. Nerve tissue. Morpho-functional characteristic. Histogenesis. Structural components.
5. Neurons. Classification. Structure, function. Glial cells. Classification, development, structure, function and distribution.
6. Nerve fibers: myelinated and unmyelinated. Structure, function.
7. Nerve terminations. Classification. Morpho-functional characteristic. Receptors.
8. Synapses. Effectors. Types, structure and function. Reflex arc. Components. Types of reflex arcs.
9. Meiosis. Spermatogenesis and oogenesis.
10. Sex cells. Spermatozoon and ovum. Structure and function.
11. Spermatogenesis. Spermatozoon. Structure, function.
12. Oogenesis. Ovum. Types of ovum. Structure, function.
13. Embryonal development and his meaning for medicine. Stages of embryogenesis.
14. Fertilization. 3 phases of fertilization.
15. Cleavage (blastulation). Types of cleavage.
16. Gastrulation. Types of gastrulation.
17. Histogenesis and organogenesis. Embryonic derms and their differentiation.
18. Extraembryonic organs: serosa, amnion, yolk sac, allantois, chorion.
19. Medical embryology. Human embryogenesis. Fertilization Morphology of zygote. Type of cleavage. Structural components of blastula: embryoblast and trophoblast. Implantation. Gastrulation: 1 phase - delamination, 2 phase - immigration. Neurulation (3 phase - invagination) and formation of complex of axial organs. Formation and

structure of extraembryonic organs (4 phase - epibolya): chorine, amnion, yolk sac, allantois.Formation of placenta (fetal, maternal), their structure and function. Differentiation of mesoderm. Histogenesis. Critical periods in human embryogenesis. Postnatal period.

Recommended reading for the lesson: [8,9,10,11]

Key questions covered in Unit 3

1. Cardio-vascular system. Classification. Development. General morpho-functional characteristic. Arteries and veins. Microcirculation: arterioles, capillaries, venules.
2. Lymph vessels. Structural and tissue components. Regeneration.
3. Heart. General morpho-functional characteristic. Development. Structural components of heart: endocardium, myocardium, epicardium. Pericardium. Regeneration.
4. Hemopoietic organs. General morpho-functional characteristic. Development.
5. Classification. Central hemopoietic organs (bone marrow, thymus) and peripheral lymphoid organs (spleen, lymph nodes, tonsil). Structural components. Morphological bases of immunologic reactions.
6. Integumentary system. General morpho-functional characteristic. Development and structure of the skin. Tissue components of the epidermis, dermis, hypodermis.
7. Appendages of the skin: hair, nails, sweat and sebaceous glands. Regeneration.
8. Endocrine system. General morpho-functional characteristic. Classification. Central and peripheral endocrine glands. Diffuse endocrine system. Development of endocrine glands. Structural components. Regeneration.

Recommended reading for the lesson:
[8,9,10,11]

Key questions covered in Unit 4.

1. Respiratory system. General morpho-functional characteristic. Development.
   Conducting part. Structural and tissue components. Morpho-functional characteristic of mucosa in conducting part. Respiratory part (acinus) of lung. Structure of alveoli and interalveolar septum. Air-blood barrier. Pleura. Regeneration.
2. Digestive system. General morpho-functional characteristic. Classification. Development. Oral cavity. Structure of mucosa layer of lips, cheeks, palate, tongue, gums, tonsils. Structure of mucosa layer in dorsal and ventral surface of tongue. Types of papillae. Tissue components of papillae.
3. Teeth. Development. Tissue components: enamel, dentin, cement, pulp, periodont. Structure and function.
4. Alimentary canal: esophagus, stomach, intestine. General morpho-functional characteristic. Development. Structural components: mucosa, submucosa, muscularis externa, adventitia or serosa.
5. Esophagus. Histologic characteristic. Mucous glands of esophagus. Esophago-stomach junction.
6. Stomach. Histologic characteristic. Structures of mucosa layer. Cellular components of cardiac, fundic and pyloric glands.
7. Small intestine. Histologic characteristic of duodenum, ileum, jejunum. Structural components of crypts, villi.
8. Small intestine. System of crypt-villum, their cellular components of epithelium.
9. Large intestine. Morpho-functional characteristic of colon, appendix, rectum. Structure of mucosa layer. Epithelium in different zones of rectum. Age changes. Regeneration.
10. Large digestive glands. General morpho-functional characteristic. Development. Structural and tissue components.
11. Salivary glands. Classification. Large salivary glands: parotid, submandibular, sublingual. Structural and tissue components. Types of secretion.
12. Pancreas. Structure of exocrine part (acinus) of pancreas. Cyto-physiology of acinar cells.
13. Liver. Structural components. Histologic characteristic of classic lobule, portal lobule, acinus. Regeneration.
14. Urinary system. General morpho-functional characteristic. Development. Kidney: cortex and medulla. Tissue components. Nephron. Structure and types of nephron.
15. Histophysiology of nephrons and collecting ducts. Morphology of endocrine apparatus: juxtaglomerular and prostaglandin. Regeneration.
16. Excretory passages of urinary system. General morpho-functional characteristic.
17. Structural and tissue components of calyces, papillae, renal pelvis. Morpho-functional characteristic of ureter, urinary bladder, urethra.

Recommended reading for the lesson: [8,9,10,11]

Key questions covered in Unit 5.

1. Male reproductive system. General morpho-functional characteristic. Development. Testis. Structural and tissue components. Seminiferous tubules. Spermatogenesis. Supporting cells and spermatogenic epithelium. Hematotesticular barrier.
2. Histophysiology of straight tubules, rete testis, efferent ductules. Extratesticular genital ducts. Structure of ductus epididymis, ductus deferens.
3. Male reproductive system. Accessory glands: seminal vesicles, bulbourethral glands, prostate. Structure and function.
4. Female reproductive system. General morpho-functional characteristic. Classification.
5. Development. Ovaries. Histologic characteristic of ovarian follicles. Ovulation, and formation of corpus luteum. Age changes of ovaries.

6. Uterus. Structural components: endometrium, myometrium, perimetrium. Histologic characteristic of endometrium in menstrual, postmenstrual, premenstrual phases of the menstrual cycle. Uterine tube and vagina. Structure and function.
7. Mammary gland. Development, structure of prepubertal and postpubertal gland. Regeneration.
8. Central nervous system. General morpho-functional characteristic. Development. Classification of the nervous centers (morphological and functional). Spinal cord, cerebrum, cerebellum. Structural components of organs: grey and white matter.
9. Histological structure of dura mater and pia mater. Blood-brain barrier.
10. Peripheral nervous system. General morpho-functional characteristic. Development.
11. Nerves. Sensitive nerve ganglia (spinal and cranial). Ganglia of autonomic nervous system (extra- and intramural). Structural components of organs: grey and white matter.
12. Peripheral nerve endings. Structure of reflex arcs.
13. Sense organs. General morpho-functional characteristic. Classification. Primary sensory organs: retina of eye, olfactory epithelium. Tissue components. Cyto-physiology of receptor cells.
14. Sense organs. General morpho-functional characteristic. Classification. Secondary sensory organs. Tissue components. Ear: cristae of semicircular canals, maculae of the vestibule, organ of Corti. Taste buds of tongue. Cyto-physiology of receptor cells.

Recommended reading for the lesson: [8,9,10,11]

Methodological instructions for the implementation of independent work on the discipline

Methodological instructions for making an abstract:

1. To study the curriculum and the working curriculum.
2. Determine the place of the topic of this lecture in the structure of the discipline according to the thematic plan.
3. Find out all the issues that need to be studied.
4. To study material, which is in the syllabus, to clarify the amount of missing material on the basis of control questions, tasks for control work and questions submitted for the module (see the program discipline and the working curriculum).
5. Determine the literature in which there is the necessary educational material, and the sequence of its assimilation.
6. To process each educational material in the following way.
7. Read it in dynamics to understand the general essence..
8. Read the study material a second time, understanding each word and sentence
9. For the third time to identify the basic concepts, the essence of phenomena and processes, their structure and content, as well as the links between them.
10. Write it all down in a synopsis.
11. To establish a connection with the previous educational material.
12. Independently answer all control questions on this topic.

Methodological instructions for independent work:

1. Study the theoretical material well; master the method of applying knowledge in practice.
2. Be able to use the necessary equipment, materials, equipment for measurements.
3. To study the recommendations for specific laboratory or practical work, which are set out in textbooks and methodological developments.
4. Make a plan for laboratory or practical work.
5. Prepare the necessary material.
6. Perform tasks of laboratory or practical work.
7. Interpret the results and describe the identified phenomena.
8. Draw conclusions.
9. Draw up everything accordingly.