Ministry of Public Health of Ukraine
Poltava State Medical University

The Department of Human Anatomy

SYLLABUS

NORMAL ANATOMY: AN INTEGRATIVE COURSE

Elective discipline

level of higher education	the second (master's) level of higher education
field of knowledge	22 «Healthcare»
specialty	221 «Dentistry»
academic qualification	Master of Dentistry
professional qualification	Dentist
academic and professional program	«Dentistry»
mode of study	full-time
course(s) and semester(s) of study of the discipline	III course 5 semester

Poltava 2024

INFORMATION ABOUT LECTURES WHO TEACH THE COURSE

Surname, name, patronymic of the lecturer (lecturers), scientific degree, academic title	Svintsytska Nataliia Leonidivna - Candidate of Medical Sciences, Associate Professor Hryn Volodymyr Hryhorovych – Head of the Department, Doctor of Medical Sciences, Professor Piliuhin Andriy Valentynovych - Candidate of Medical Sciences, Associate Professor Ustenko Roman Leonidovych - Candidate of Medical Sciences, Associate Professor Katsenko Andriy Lyuboslavovych – Lecturer Lytovka Volodymyr Viktorovych- Lecturer
Profile of the lecturer (lecturers)	https://anatomy.pdmu.edu.ua/team
Contact phone	609611
E-mail:	anatomy@pdmu.edu.ua
Department page at the website of PSMU	https://anatomy.pdmu.edu.ua/

MAIN CHARACTERISTICS OF AN ACADEMIC DISCIPLINE

Volume of academic discipline
Number of credits/hours- 3/**90**, of them:
Lectures (hours) – 0
Practical (workshops) (hours) – **30**
Independent work (hours) – **60**
Type of control – Credit test

The policy of the academic discipline

During practical classes and lectures on the subject "Human Anatomy" students must comply with the following obligations:

• be honest;
• respect the teachers, staff and students of the academy;
• be responsible for their actions and the consequences they lead to;
• attend all classes according to the schedule, if there is no documentary evidence of a valid reason for their absence;
• come to class on time and do not leave the classroom without the permission of the teacher;
• perform all academic tasks and work in a timely manner;
• actively prepare for classes and participate in work during classes, while giving other students the opportunity to contribute to the learning process;
• comply with the law, moral and ethical standards of conduct;
• acquire knowledge, practical skills, and professional skills;
• treat the department's property and teaching aids (wet, bony, etc.) carefully;
• adhere to sanitary and hygienic norms;
• timely inform the administration of the department about the circumstances that hinder the performance of duties by students or make them impossible;
• adhere to the academic uniform (white dressing, medical cap);
• It is strictly forbidden to use the telephone in the premises of the department for photography and video, without the permission of the staff of the department.

System of rewards: the policy in the field of evaluation of all types of educational achievements of students is based on the principles of transparency, objectivity and openness. The department adheres to a steady course of student-centered learning, the practical implementation of the principles of individualization and differentiation in education, as well as the eradication of any manifestations of subjectivity and bias in assessment.

When organizing the educational process at the Department of Human Anatomy of PSMU, teachers and students act in accordance with the following:

- regulations on the organization of the educational process at Poltava State Medical University;
- internal regulations for students of Poltava State Medical University;
- regulations on the organization of students' independent work at Poltava State Medical University;
- regulations on the procedure for forming individual educational trajectories by higher education students of Poltava State Medical University

You can get acquainted with these provisions on the PSMU website https://www.pdmu.edu.ua/n-process/department-npr/normativni-dokumenti.

Description of the discipline (abstract)

The elective discipline "Advanced study of normal human anatomy" is the science of the form, structure, origin and development of organs, systems and the human body as a whole. The subject of the discipline "Human Anatomy" is a classical model of a university course adapted to the needs of medicine, which involves the systematization of basic knowledge of the structure and functions of the human body in general, blood supply and inertia of internal organs in particular, the ability to use systematized in-depth knowledge in the further study of other fundamental sciences of medicine and in the practical activities of a doctor. The staff of the Department of Human Anatomy of PSMU is represented by highly qualified teaching staff. The staff of our department has strong traditions and rich experience in teaching and educational work among students.

Today, at the Department of Human Anatomy, the latest educational technologies have taken a prominent place in the organization of the educational process. Computer interactive VR technology is actively used through the use of the mobile multimedia complex ONIKO. It allows creating an immersive interactive environment for students studying human anatomy. The advantages of using VR technologies in the study of human anatomy are: an unlimited number of samples for virtual "dissection", the ability to study "living" systems and targeted work with individual anatomical objects. VR technologies offer a fascinating experience of studying human anatomy and provide the opportunity to explore and manipulate realistic anatomical structures up close, from all sides, and in the smallest detail.

Prerequisites and postrequisites of the discipline (interdisciplinary links)

Prerequisites. The study of human anatomy is based on the knowledge gained by students in the study of medical biology, histology, cytology and embryology, biophysics, Latin, ethics, philosophy, ecology and integrates with these disciplines.

Postrequisites. The discipline "Human Anatomy" lays the foundations for students to study normal and pathological physiology, pathological anatomy, operative surgery and topographic anatomy, deontology, propaedeutics of clinical disciplines and the formation of skills to apply knowledge of human anatomy in further study of all clinical disciplines and future professions.

Disciplines that require knowledge, skills and abilities acquired after completing the study of this discipline:

- Obstetrics and gynaecology
- Internal medicine
- Surgery
- Paediatrics

- Therapeutic dentistry
- Surgical dentistry
- Paediatric dentistry
- Orthopaedic dentistry

Purpose and objectives of the discipline

The purpose of teaching the discipline is primarily to qualitatively prepare higher education applicants for the licensed integrated exam 'Krok 1. Dentistry', systematisation of knowledge of anatomy in the world of natural science ideas about the structure, blood supply and inertia of human organs, the ability to use the acquired knowledge in the further study of other basic sciences of medicine and in the practical activities of a dentist.

The main objectives of the discipline are a systematic approach to the structure of organs, the position (topography) of body parts and organs in unity, taking into account the peculiarities of blood supply and innervation, in particular, the organs of the head and neck.

Competences and learning outcomes contributed to by the discipline (integral, general, special)

According to the requirements of the standard, the discipline provides students with the acquisition of competencies:

• integrated:

Ability to solve typical and difficult specialized tasks and practical problems in the course of training that provides carrying out researches and/or implementation of innovations and is characterized by complexity and uncertainty of conditions and requirements.

- **general:**

- The ability to think abstractly, analyse and synthesise, the ability to learn and master modern knowledge.
- Ability to apply knowledge in practical situations.
- Knowledge and understanding of the subject area and understanding of professional activities.
- Ability to adapt and act in a new situation.
- Ability to communicate in the state language both orally and in writing; ability to communicate in a foreign language. Ability to use international Greek-Latin terms, abbreviations and clichés in professional oral and written communication.

• special (professional):

- Ability to establish a preliminary and clinical diagnosis of the disease.
- Ability to determine the necessary regime of work and rest in the treatment of diseases
- Ability to determine the principles and nature of treatment of diseases.
- Ability to diagnose emergency conditions.
- Skills in performing medical manipulations.
- Ability to determine the tactics of physiological pregnancy, physiological childbirth and postpartum period. Skills of counselling on family planning and selection of contraceptive methods.
- Ability to diagnose: determine preliminary, clinical, final, concomitant diagnosis, emergency conditions.
- Ability to plan and implement measures for the prevention of diseases of the organs and tissues of the oral cavity and maxillofacial region.
- Ability to design the process of medical care: to determine approaches, plan, types and principles of treatment of diseases of the organs and tissues of the oral cavity and maxillofacial region.
- Ability to perform medical and dental manipulations.
- Ability to treat the main diseases of the organs and tissues of the oral cavity and maxillofacial region.

- Ability to assess the impact of the environment on the health of the population (individual, family, population).
- Processing of state, social and medical information.

Learning outcomes for the discipline: upon completion of the discipline, students should:

know:

a) the shape and structure of organs united in systems:

- viscera (systema digestorium, respiratorium, urinarium, genitalia);
- the central and peripheral nervous system (including the autonomic division of the peripheral nervous system (systema nervorum);
- endocrine organs (glandulae endocrinae);
- organs and structures of the immune system;
- lymphoid system (systema lymphoideum);
- sensory organs (systema sensuum);
- cardiovascular system (systemacardiovasculare);

b) the relative location of organs, vessels, nerves in different parts of the body, which is of great importance for surgery;

c) age and sex aspects of anatomical features of individual human development at different stages of ontogeny;

Be able to:

- demonstrate and describe the anatomical structure of organs and organ systems;
- be able to assess the peculiarities of the structure and function of organs in childhood;
- determine the topographic and anatomical relationships of organs and organ systems on anatomical specimens;
- be able to assess the age, sex and individual characteristics of the structure of human organs.

The topics of seminar classes are not provided for in the curriculum.

Thematic plan of practical classes by content modules with an indication of the main questions to be considered at the practical class

№№/	**Topic**	Number of hours
	Content module 1: Osteology, arthrology, myology	
1	**Osteology.** 1.Bones of the axial skeleton: vertebrae, sternum, ribs. 2.Bones of the accessory skeleton: bones of the girdle and free upper limb; bones of the girdle and free lower limb. 3.Step 1.	2
2	**Craniology.** 1.Bones of the skull: bones of the neurocranium, bones of the facial skull. Features of development, structure, anomalies. 2.External and internal surfaces of the skull base. 3.The skull as a whole. 4. The orbit, its walls. 5.Bone base of the nasal cavity. Nasal meatuses, their connections. 6.Bony palate. Developmental anomalies. 7.Temporal, infratemporal, pterygopalatine fossa of the skull, their connections, clinical significance. 8.Step 1.	2
3	**Fundamentals of arthrosyndesmology.** 1.Types of joints. Classification of joints. 2.Connections between vertebrae. The spinal column as a whole. Curves of the spinal column. Pathology and developmental anomalies. Age-	2

	related features. 3.Connection of the spinal column with the skull. Atlanto-occipital, Atlanto-axial joints, structure, biomechanics of movements. Temporomandibular joint, structure, biomechanics of movements. 4.Connection of the spinal column with the ribs. Connection of the ribs with the sternum. The chest as a whole. Pathology and anomalies of the chest. 5.Connections of the bones of the upper limb girdle. Shoulder and elbow joints. Structure, biomechanics of movements. Connections of the bones of the forearm and hand. 6.Connections of the bones of the lower limb girdle. The pelvis as a whole. Dimensions of the pelvis. Age and gender characteristics. The hip joint. Structure, biomechanics of movements. Knee joint, structure, biomechanics of movements. Connection of the bones of the lower leg and foot. Joints of the foot, foot as a whole. 7. X-ray anatomy of bones and joints. 8. Step 1.	
4	**Myology.** 1.Muscles and fascia of the back. Topography. 2.Muscles and fascia of the chest. Diaphragm. 3.Muscles and fascia of the abdomen. Sheath of the rectus abdominis muscle. The inguinal canal. White line of the abdomen. Topography of the anterior wall of the abdominal cavity. 4.Muscles and fascia of the neck. Neck topography: neck triangles, their borders, clinical significance. 5.Muscles and fascia of the head: masticatory and facial muscles. Interfascial spaces of the head. 6.Muscles and fascia of the shoulder girdle. Axillary cavity. Muscles and fascia of the shoulder. Topography of the shoulder. Muscles and fascia of the forearm and hand. Synovial sheaths of tendons. Topography of the upper extremity. 7.Muscles and fascia of the pelvis. Topography. Muscles and fascia of the thigh. Femoral canal. Muscle and vascular bays. Topography of the thigh. Muscles of the lower leg and foot. Topography. 8.Step 1.	2
	Content module 2. Splanchnology. The human cardiovascular system	
5	**Features of the structure of the human digestive and respiratory systems.** 1.Organs of the digestive system: oral cavity, palate, teeth, salivary glands, pharynx, esophagus, stomach, small intestine, colon. Structure, topography, functions, malformations. 2. Liver, pancreas. Structure, topography, functions. 3.Peritoneum. Clinical aspects. 4. Organs of the respiratory system: nasal cavity, larynx, trachea, bronchi. Structure, topography, functions, malformations. 5. Lungs, structure, topography, functions. Segments. 6.Pleura. Mediastinum. 7. Step 1.	2
6	**Anatomy of the human genitourinary system.** 1. Kidneys: external, internal structure. Membranes. Topography,	2

	functions. 2. Ureters. Bladder. 3. Male and female urethra. X-ray anatomy of the urinary tract. 4. Male reproductive system. Internal male genitalia. External male genital organs. Defects and anomalies of development. 5. Female reproductive system: external and internal genital organs. Developmental defects and anomalies. 6.Step 1.	
7	**Angiocardiology.** 1.Anatomy of the heart: external structure of the heart, shape, position, heart chambers, their structure, heart valves, structure of the heart wall. Vessels and nerves of the heart. Conducting system. Topography of the heart. The pericardium. X-ray anatomy of the heart. 2. Human arterial system: aorta (its parts, branches of the aortic arch, branches of the thoracic and abdominal aorta, blood supply areas), external and internal carotid arteries (topography, branches, blood supply areas, anastomoses), subclavian and axillary arteries (topography, branches, blood supply areas, anastomoses), arteries of the upper limb, pelvic and lower limb. 3. Human venous system: superior vena cava system, inferior vena cava system, hepatic portal vein system (topography, tributaries, intra- and intersystem anastomoses, clinical significance). 4. Blood supply to the upper teeth, venous outflow. 5. Blood supply to the lower teeth, venous outflow. 6. Step 1.	
	Content module 3: Neuroanatomy	
8	**Fundamentals of neurology. Spinal cord.** 1.Morphology and general structure of the spinal cord. Classification of neurons: sensory (afferent), insertion (connecting) and motor (efferent). 2.External morphology of the spinal cord: sulci, fissures. Segmentation of the spinal cord and spinal nerve roots. 3.Functional components of a typical spinal nerve: general somatic afferent (GSA), general visceral afferent (GVA), general somatic efferent (GSE) and general visceral afferent (GVE). 4. Internal morphology of the spinal cord - gray and white matter. Gray matter nuclei and white matter tracts. The central canal of the spinal cord. 5.Neural architecture, nuclei of the posterior gray column, nuclei of the lateral gray column, nuclei of the anterior gray column, neural groups of the gray commissure. 6.Functions of white matter. Tracts. 7.Blood supply of the spinal cord: anterior spinal arteries, posterior spinal arteries, anterior and posterior radicular arteries, great ventral radicular artery, ventral and dorsal spinal veins, radicular veins, epidural venous plexus. 8.Clinical cases - syringomyelia, spinal shock, Tabes dorsalis, Brown-Secar syndrome, Ependymomas, Spina bifida. 9.Step 1.	2

9	**The brainstem. Cerebellum. Reticular formation.Clinical aspects.** 1. General characteristics of the brainstem, its components. 2. Medulla oblongata, pons, structure, blood supply. 3.The midbrain. The legs of the brain. Blood supply. 4.Diencephalon. Hypothalamic areas and components of the nucleus. Areas of the hypothalamus and components of the nucleus. Hypothalamic connections. Thalamus. The inner and outer cerebral lamina. Nuclei of the thalamus. Blood supply. 5.Structure of the reticular formation. Areas of reticular formation. Nuclei associated with the reticul ar formation. Conducting pathways of the reticular formation. Functions of the reticular formation. 6.Cerebellum. The structure of the cerebellum. Conducting pathways of the cerebellum. Functional organization of the cerebellum: internal structure. 7. Step 1.	2
10	**The telencephalon.** 1. Pallium, its relief. 2.The cerebral cortex. Localization of functions in the cerebral cortex. 3.Afferents to the cerebral cortex. Afferents from the cerebral cortex. Functional areas of the cerebral cortex. Cerebral dominance. 4.Step 1.	2
11	**Basal nuclei. Limbic system.** 1.Basal nuclei. Components of the basal nuclei. The nuclei are connected with the basal ganglia. Internal nuclei, stimulating nuclei and those to be stimulated. Connections of the basal nuclei. Pathways connecting the basal nuclei, thalamus and cerebral cortex. 2.Basal nuclei - their connections between the cerebral cortex, thalamus, cerebellum, brainstem and spinal cord. 3.Components of the basal nuclei: caudate nucleus, putamen and adjacent nucleus, which form the corpus striatum. 4.Nuclei associated with the basal ganglia. Interconnections between the ventral nucleus of the anterior thalamus, ventro-lateral, medial dorsal and intralaminal nuclei of the thalamus with the basal ganglia. Neural connections of the basal ganglia with components of the limbic system (amygdala). 5.The caudate nucleus, putamen and the adjacent nucleus as the input nuclei of the basal ganglia. The lateral segment of the pallidum, the subtalamic nucleus, and the compact part of the substantia nigra as the internal nuclei of the basal ganglia. 6. Main characteristics of the connections of the basal nuclei. Internal connections of the basal nuclei. 7.The connection of the basal nuclei with brain areas involved in motor activity. 8. Main connections of the basal ganglia and their neurotransmitters: "direct" and "indirect" pathways of the basal nuclei. Disorders of the basal nuclei function and the main symptoms of their damage: hypertension and dyskinesia. 9.Limbic system. Limbic lobe. Centers of the brainstem associated with the function of the limbic system. Pathways of the limbic system. Clinical aspects.	

	10. Step 1.	
	Content module 4. Peripheral nervous system	
12	**Spinal nerves.** 1.Characteristics of the peripheral nervous system. 2.Spinal nerves: formation, structure, branches. 3.Posterior branches of spinal nerves, areas of innervation. 4.Anterior branches of spinal nerves. 5.Cervical plexus, branches, areas of innervation. Diaphragmatic nerve, topography. 6.Brachial plexus: short, long branches, areas of innervation. 7.Intercostal nerves: topography, areas of innervation. 8.Lumbar plexus, areas of innervation, clinical significance. 9. Lumbo-sacral plexus, branches, topography, areas of innervation. 10.Sciatic nerve: topography of branches, areas of innervation, clinical significance. 11.Step 1.	2
13	**Cranial nerves.** 1.General characteristics of cranial nerves: structure, topography, functions. 2.Oculomotor nerve: branches, areas of innervation. Trochlear nerve: branches, areas of innervation. Abducens nerve: branches, areas of innervation. 3.General characteristics of the trigeminal nerve: formation, areas of innervation. Inervation of the teeth of the upper jaw. 5.Mandibular nerve, topography, branches, areas of innervation. 6.Facial nerve. Intermediate nerve: nuclei, characteristics, branches, areas of innervation. The facial nerve: areas of innervation. Clinical significance. 7.Characteristics of the vagus nerve: topography, branches, areas of innervation. Branches of the cerebral, cervical, thoracic and abdominal divisions of the vagus nerve, their clinical significance. 8.General characteristics of the glossopharyngeal nerve: nuclei, branches, areas of innervation. 9.The accessory and hypoglossal nerves: nuclei, branches, areas of innervation, clinical significance. 10.Step 1.	2
	Content module 5: Fundamentals of esthesiology	
14	**Fundamentals of esthesiology.** 1.The concept of analyzers. 2.Characteristics of the sensory organs. 3.General characteristics of the organ of vision. 4.Eyeball: chambers, membranes, light refracting media. 5.Auxiliary apparatus of the organ of vision: eyelids, lacrimal apparatus, etc. 6.Conducting pathway of the organ of vision. II pair of cranial nerves. Central visual pathways. Visual reflexes. Control of eye movements, nystagmus. 7.General characteristics of the organ of hearing and balance. 8.External, middle, internal ear, structure, components. 9. Tympanic cavity: walls, contents, auditory ossicles. 10. VIII pair of cranial nerves. Conducting pathway of the organ of hearing and balance. Auditory transmission. Central auditory pathways.	2

	Central pathways of the vestibular system. 11.The organ of smell, taste. I pair of cranial nerves. Olfactory transduction. Central connections of the olfactory system. 12. Step 1.	
15	**Conducting pathways of the brain and spinal cord. Credit test.** 1.General characteristics of the conduction pathways of the brain and spinal cord. 2. Ascending leading projection pathways of the cortical direction. 3. Ascending conductive projection pathways of the cerebellar direction. 4.Descending conduction pathways of the brain and spinal cord. Pyramidal pathways. 5. Descending conduction pathways of the brain and spinal cord. Extrapyramidal pathways. 6.Ascending sensory pathways. 7.Neuroplasticity. Motor cortex and descending motor pathways. 8. General characteristics of special sensory pathways. 9. Step 1.	2
	Total	**30**

Self-directed learning

№	Topic	Hours
1.	Preparation for practical classes - theoretical training and development of practical skills (15×2 hours)	30
2.	Studying topics that are not included in the classroom plan (10×3 hours)	30
1	**Development and classification of bones.** 1.General data about the skeleton. Primary and secondary bones. Classification of bones.Compact and spongy bone substances, their structure. Chemical composition, physical and mechanical properties of bone. Structure of tubular bone: its parts. Features of the bone structure in childhood, adolescence, adulthood, old age and senility. 2.Development of connections between bones. 3. Sources of development of muscles of the trunk, head, neck, upper and lower extremities. Auxiliary apparatus of muscles. 4.Basic data on muscle strength and work; the concept of levers. 5.Classification of muscles: by development, topography, shape, size, direction of muscle fibers, function, etc. 6.Sources of development of muscles of the trunk, head, neck, upper and lower extremities.	3
2	**Introduction to splanchnology.** 1. General plan of the structure of the wall of tubular organs: mucous membrane, muscular membrane, outer membrane. 2.Organ-specific features of the mucous membrane structure depending on the function of the organ. 3.Serous membrane: variants of the relationship of organs to the peritoneum. 4.General patterns of structure of parenchymal organs. 5.Glands: their classification, general principles of structure, functions. 6. Development of the digestive system in ontogeny. 7. Development of the respiratory system in ontogeny. 8. Development of the organs of the genitourinary system in ontogeny. 9. Types of excretory tree of the kidney. 10. The perineum.	3
3	**Organs of the endocrine system.**	

	1.General principles of the structure of endocrine glands, their differences from exocrine glands. 2.Structural definition of the concept of "endocrine function". 3.Structural mechanisms of realization of the action of hormones. 4.Classification of endocrine organs. 5.Central department of the endocrine system. 6. Pituitary gland: topography, parts, structure, functions. Hypothalamic-pituitary neurosecretory system (hypothalamic-adenohypophyseal and hypothalamic-neurohypophyseal systems). 7.Upper cerebral appendage. Pineal gland. 8.Features of functional activity of endocrine organs in the prenatal period of human ontogeny. 9.Variants and malformations of endocrine organs.	
4	**Development of the heart in ontogeny. Development of blood vessels (arterial, venous).** 1.Malformations of the heart. 2.Development of arterial vessels, features of the wall structure. Malformations, pathology. 3.Development of venous vessels, features of the wall structure. Malformations, pathology. 4. Laws of distribution of vessels by P.F. Lesgaft.	3
5	**The human immune system.** 1.General characteristics of the immune system. Functions. 2.Organs of hematopoiesis and immune system. 3.Central organs of the immune system: red bone marrow, thymus. 4.Peripheral organs: spleen, lymph node, tonsils, appendix.	3
6	**Lymphatic system as a component of the immune system.** 1. General characteristics of the lymphatic system. 2. Lymphatic vessels and nodes of the head and neck, upper extremity, chest cavity. 3. Lymphatic vessels and nodes of the abdominal cavity, lower extremities. 4. Thoracic duct, tributaries, clinical significance. 5.Right lymphatic duct.	3
7	**Development of the nervous system.** 1. Sources of development of the nervous system. Ectoderm. 2. Development of the spinal cord in ontogeny. 3. Development of the brain in ontogeny. Stages 3 - 5 of the brain vesicles. 4. Malformations of the brain and spinal cord.	3
8	**Circumventricular system of the brain.** 1. Ventricles of the brain (I, II, III, IV), their walls. Development in onogenesis. Malformations of development. 2. The meninges of the brain. 3.Cerebrospinal fluid: formation, circulation, outflow. Clinical significance and biochemical composition.	3
9	**Autonomic nervous system.** 1.General characteristics of the autonomic nervous system. 2.Sympathetic part of the autonomic nervous system: central and peripheral departments, clinical significance. 3.Characteristics of the parasympathetic part of the autonomic nervous system: parts, areas of innervation, clinical significance. 4.Parasympathetic nodes of the head, topography. 5.Features of autonomic innervation of the head and neck organs. 6. Autonomic nodes of the head and neck, clinical significance.	3

	7. Visceral plexuses of the thoracic cavity. 8. Visceral plexuses of the abdominal and pelvic cavity.	
10	**Skin. Derivatives of the skin.** 1.Skin: structure, functions. 2. Derivatives of skin. 3. The mammary gland. 4. Malformations of the skin and its derivatives.	3
	Total	**60**

Attention!

Each student must complete all topics of Self-directed learning that are not included in the plan of classroom classes with a satisfactory grade on the eAristo platform during the study of the discipline. If the topics are not completed, then the student is not allowed to take the credit test!

Individual tasks are individual work carried out on a personalized task under the guidance of a teacher of the Department of Human Anatomy, during which the higher education student can receive methodological assistance in the form of individual consultation. Such work may include studying certain sections of the discipline, performing creative work, working with computer technology, etc. These tasks can be educational, research, creative, etc. Their main purpose is to deepen, generalize and consolidate the knowledge that higher education students acquire in the course of their studies, as well as to apply this knowledge in practice.

Types of individual learning tasks are:

1. Study of literary sources necessary for independent scientific research and preparation of scientific publications and reports based on their results, creation of presentations.
2. Writing abstracts and reports for a student scientific conference.
3. Work with dictionaries, manuals, professional literature.
4. Preparing presentations, making visual aids (tables, macro preparations). The grade for individual work is assigned on a traditional scale and affects the current academic performance of the student.

Form of final control of academic performance – credit

List of questions to be mastered by a higher education student in the study of the discipline (form of control – credit test) in the discipline «Normal anatomy: an integrative course»

1. The main axes and planes of the human body.
2. Small intestine: parts, their topography, relation to the peritoneum. Structure of the mucous membrane of the small intestine.
3. General plan of the vertebral structure: describe and demonstrate on the preparations. Features of the structure of the cervical, thoracic, lumbar vertebrae.
4. Bone as an organ. Classification of bones. The main stages of bone development.
5. Esophagus: parts, topography; structure of the wall. Anatomical and physiological constrictions of the esophagus.
6. Structure of the tongue: describe and demonstrate on the preparations.
7. Mimic muscles: structure, function.

8. The spinal column as a whole. Departments of the spinal column: to name and demonstrate on the preparations.

9. Neck muscles: topographic classification, structure, functions. Neck topography: areas, triangles, intermuscular spaces.

10. Lungs: topography; lobes, segments, lobules, acini. Acinus: definition, structure, functions.

11. Classification of ribs. Structure of 1-12 ribs: describe and demonstrate on the preparations.

12. Chewing muscles: structure, function.

13. The structure of the sternum. The chest as a whole: to describe and demonstrate on the preparations.

14. Classification of bone joints: intermittent and continuous. Syndesmosis, synchondrosis, synostosis: definition, formation, examples.

15. Compartments of the skull: describe and demonstrate on preparations. Cerebral skull: parts, name and demonstrate on the preparation the bones that form the vault and base of the skull.

16. Muscles of the chest: topographic classification, structure, functions. Diaphragm: topography, parts, functions.

17. Temporal bone: parts - to describe and demonstrate on the preparation and on the skull. Canals of the temporal bone: Demonstrate the course of the facial nerve canal, carotid canal and musculotubal canal.

18. Abdominal muscles: classification, structure, functions.

19. Mediastinum: definition, classification according to the international anatomical nomenclature, topographic classification. Organs, vessels and nerves of the anterior, middle, posterior mediastinum.

20. Maxilla: parts, processes, their structure; describe and demonstrate on the preparation.

21. Vagina of rectus abdominis: walls, their structure. White line of the abdomen: topography, structure. The inguinal canal: walls, rings, their structure, contents.

22. Pancreas: parts, their topography, relationship to peritoneum. Exocrine and endocrine departments of the pancreas, ways of excretion of their products.

23. Mandible: parts, their structure; describe and demonstrate on the preparation.

24. Muscles of the head: classification. Chewing muscles: structure, function.

25. Temporal fossa, infratemporal and pterygopalatine fossa: borders, walls, connections; describe and demonstrate on the skull preparation.

26. Head muscles: classification. Facial muscles: structure, function.

27. Colon: sections, topography, wall structure, relationship to peritoneum.

28. Orbita: borders, walls, connections. Describe and demonstrate on a skull preparation.

29. Temporomandibular joint, structure, biomechanics of movements.

30. Nasal cavity: the boundaries of entry and exit of the nasal cavity, its walls, connections. Nasal meatuses: their structure, connections. Describe and demonstrate on a skull preparation.

31. Palate (hard, soft, bone), formation. Malformations of the palate.

32. Anatomical formations of the external base of the skull. Demonstrate on a skull preparation.

33. Permanent teeth. Formulas, developmental anomalies.

34. Nose: parts, structure, developmental anomalies. Nasal cavity: nasal passages, their structure and connections. Paranasal sinuses: topography, connections, functions, age-related features.

35. Internal base of the skull: borders, structure, connections of the anterior, middle, posterior cranial fossa.

36. Muscles of the thigh: classification, structure, functions.

37. Age and sex peculiarities of the structure of the skull bones, fontanelle. Describe and demonstrate on the preparation of the skull.

38. Development of the oral cavity. Malformations of development. Departments of the oral cavity. The floor of the mouth. The oral cavity itself.

39. Parts and structure of tubular bones: name and demonstrate on the preparations. Upper limb: its parts. Demonstrate the bones that form them.

40. Lower limb: its parts. Demonstrate the bones that form them.

41.Tongue: parts, structure, features of the mucous membrane of the tongue, functions of the tongue.

42. Hip bone: describe and demonstrate its structure on the preparation. As a result of fusion of which bones it is formed?

43. Teeth: parts of the tooth, tooth tissue, tooth crown surface. Periodontium, periodontium, dental organ: definitions. Permanent teeth: formula.

44. The pelvis as a whole: demonstrate its parts. Sex and age characteristics of the pelvis. The main dimensions of the pelvis.

45. Milk teeth: their formula, timing of eruption of milk teeth. Differences between milk teeth and permanent teeth.

46. Nasal passages, their formation and connections. Demonstrate on the preparation.

47. Oral glands: classification. Small salivary glands, their topography, structure, functions. Parotid, sublingual, mandibular salivary glands, topography, structure, functions.

48. Joint of Chopard (transverse joint of the metatarsus) and joints of Lisfranc (metatarsocarpal joints), components, clinical significance.

49. Pharynx, topography, parts, their connections; lymphatic ring of the pharynx; structure of the mucous membrane, muscular and external membranes.

50. Joint: definition, main components of the joint: describe and demonstrate on preparations. Additional components of the joints: name, describe and demonstrate on the preparations.

51. Connections of ribs with vertebrae and sternum: demonstrate on the preparations. Chest as a whole: structure, age, sex and individual characteristics.

52. Facial muscles. Features, topography, functions.

53. Types of joints of the skull bones: continuous and discontinuous. Skull springs: their structure, functional significance, terms of ossification. Demonstrate on a skull preparation.

54. Liver: external structure; relief of the diaphragmatic and visceral surfaces, topography, ligaments, relationship to the peritoneum.

55. Temporomandibular joint: structure, classification, movements. Describe and demonstrate on a skull preparation.

56 Masticatory muscles; describe and demonstrate the places of attachment on the preparations.

57. Peritoneum: definition, general characteristics; derivatives of the peritoneum (ligaments, caps, mesentery, their structure and formation), its contents.

58. Elbow joint: structure, classification, movements; describe and demonstrate on preparations.

59. Larynx: topography. Features of the structure of the wall of the tubular organs of the respiratory system.

60. Connections of the pelvic bones: sacroiliac joint: structure, classification, movements; describe and demonstrate on the preparations; pubic symphysis: structure; describe and demonstrate on the preparations. Ligaments of the pelvis: describe and demonstrate on the preparations. Name the openings formed by the pelvic ligaments.

61. Trachea and bronchi: topography, structure of the wall.

62. Hip and knee joints: structure, classification, movements. Describe and demonstrate on the preparation.

63. Pleura: general characteristics, functions, pleural cavity, its nooks and crannies. Borders of pleural sacs.

64. Auxiliary apparatus of muscles: describe, demonstrate on the preparation. Biomechanics of muscles, their effect on joints, the concept of the beginning and attachment of muscles, the moving and fixed point.

65. Kidneys: structure, topography, functions. Fixing apparatus of the kidney. Nephron - structural and functional unit of the kidney, its components.

66. Fascia of the neck: topographic classification according to V.M. Shovkunenko, describe the course of fasciae and their origin; relation to muscles, internal organs, neurovascular bundles of the neck. Identify interfascial spaces, their contents and connections.

67. Ureter: parts, topography, narrowing, radiography of the ureter.

68. Neck topography (triangles, their borders, clinical significance). Describe and demonstrate on the preparation.

69. Infratemporal, pterygopalatine fossa of the skull, their borders, contents, describe and demonstrate on the preparation.

70. Bladder: parts, topography, wall structure, relationship to the peritoneum. X-ray anatomy of the bladder.

71. Female and male urethra: parts, their topography, constriction and dilation.

72. Organs of the female reproductive system: topographic classification. Ovary: topography, ligaments, structure, functions.

73. Uterus: topography, position, ligaments of the uterus, relationship to the peritoneum, parts, wall structure, functions.

74. Classification of internal organs. General plan of the structure of tubular organs.

75. Fallopian tube: topography, parts, wall structure, relation to peritoneum, functions. X-ray anatomy of the fallopian tubes. Vagina: topography, vault, wall structure.

76. Testicle: topography, external and internal structure. Testicular membranes.

77. Ejaculatory duct: size, parts, topography, wall structure, functions. Seminal vesicles: topography, structure, functions. Ejaculatory duct: its formation.

78. Spermatic cord: its composition, topography, beginning, end, membranes.

79. Prostate gland: parts, internal and external structure, functions.

80. Thyroid gland: topography, parts, structure, functions.

81. Pineal glands: topography, structure, functions.

82. Adrenal gland: topography, structure, functions.

83. Pituitary gland: topography, parts, functions.

84. Bones of the cerebral cranium; describe and demonstrate on the preparation.

85. Bone as an organ. Classification of bones. The main stages of bone development.

86. Pineal gland: topography, structure, functions.

87. Head muscles: topographic classification, structure, functions.

88. Lungs: topography, structure. Lobes, segments, lobules, acini: structure, functions.

89. Chest muscles: classification, structure, functions. Diaphragm: topography, parts, functions.

90. Abdominal muscles: classification, structure, functions.

91. Mediastinum: definition, classification according to international anatomical nomenclature. Organs, vessels and nerves of the anterior, middle, posterior mediastinum.

92. Stomach: topography, wall structure. X-ray anatomy of the stomach.

93. Spinal cord: topography, upper and lower borders, external structure; localization of gray and white matter.

94. Nervous system: functions, classification. Neuron: definition, parts, structure of the neuron, morphological and functional classification of neurons.

95. General anatomy of arteries: anatomical and histological classification; functions of different groups of arteries. Patterns of distribution of arteries in the human body. Options for branching of arteries.

96. Medulla oblongata: topography, external and internal structure; functional significance.

97. Fourth ventricle: development, topography, walls, connections. Rhomboid fossa: formation, borders, relief. Projection of cranial nerve nuclei.

98. Common carotid artery: topography, branches. External carotid artery: topography, classification of branches.

99. Cerebellum: structure, gray matter, its functional significance. Classification of cerebellar parts according to the phylogenetic principle. Cerebellar peduncles, their composition.

100. Internal carotid artery: parts, branches, areas of blood supply.

101. Trigeminal nerve: general characteristics, nuclei, areas of innervation.

102. Subclavian artery: origin, topographic sections, branches.

103. The midbrain: development, boundaries, structure, parts. Gray and white matter.

104. Conducting pathways of the central nervous system: definition, classification.

105. Pons: boundaries, external and internal structure, topography, functional significance.

106. Arterial circle of the brain: topography, formation, functional significance.

107. Spinal cord meninges, spaces between them, their contents. Fixing apparatus of the spinal cord.

108. White matter of the cerebral hemispheres: internal capsule, its topography, parts, conducting pathways that pass in each part.

109. Heart: the structure of the wall. Conducting system of the heart: nodes, bundles, their topography, functions.

110. The main stages of development of the central nervous system. Malformations of development.

111. Aorta: parts, topography. Thoracic aorta: topography, branches, areas of blood supply.

112. Development of the brain: sources; stage three and five brain vesicles, their derivatives. Abnormalities of brain development.

113. Brainstem: development, parts.

114. Abdominal aorta: visceral branches, their classification, topography, blood supply areas; paired visceral branches, topography, blood supply areas.

115. Hypothalamus: parts, external structure; nuclei, their topography, functional significance. Hypothalamic-pituitary system.

116. Inferior vena cava: formation (roots), topography, classification of tributaries.

117. Basic nuclei: topography, parts, functional significance.

118. Heart: structure; chambers, heart valves.

119. Reticular formation: topography, structure (major nuclei), functional significance.

120. Common iliac artery: formation, topography, branches. Internal iliac artery: topography, classification of branches.

121.Metathalamus: parts, their functional significance; epithalamus: parts, their functional significance.

122. Large circle of blood circulation. Small circle of blood circulation. Blood circulation of the fetus.

123. Innervation of the teeth of the upper jaw.

124. Abdominal aorta: topography, classification of branches; parietal branches, their topography, areas of blood supply.

125. Sources of innervation of the teeth of the lower jaw.

126. Anterior jugular vein: formation. topography. Jugular venous arch: topography, formation. Brachiocephalic vein: formation, topography.

127. Limbic system: components, functional significance.

128. Vessels and nerves of the heart.

129. Spinal nerve: formation, topography, branches; correspondence to the segments of the spinal cord.

130. Sources of blood supply to the masticatory muscles.

131. Thalamic brain: parts. Thalamus: external structure, thalamic nuclei, their functional significance.

132. Internal jugular vein: formation, topography, classification of tributaries; areas of venous blood collection.

133. Maxillary nerve, topography of branches, areas of innervation.

134. Abdominal aorta: unpaired visceral branches, topography, areas of blood supply.

135. Cervical plexus: formation, topography, branches, areas of innervation.

136. Internal iliac artery: parietal branches, their topography, areas of blood supply.

137. Lumbar plexus: formation, topography, branches, areas of innervation.

138. Intra-systemic and intersystemic venous anastomoses: definition.

139. The path of the trigeminal nerve.

140. Internal jugular vein: formation, topography; classification of tributaries. Intracranial and extracranial tributaries of the internal jugular vein.

141. Pyramidal pathways: cortical-spinal pathway.

142. Lymphatic system: general characteristics, functions. Lymphatic vessels: structure, topography, functions.

143. Somatosensory pathways of conscious sensitivity: the path of pain, temperature, tactile and conscious proprioceptive sensitivity from the head and neck.

144. Hemiazygos vein: formation, topography, classification of tributaries; visceral tributaries, sites of venous blood collection; parietal tributaries, sites of venous blood collection.

145. Lemniscus medialis: formation, composition, topography, functional significance.

146. Portal vein: formation (roots), areas of venous blood collection; topography.

147. Pyramidal pathways: cortical-nuclear pathway.

148. XII pair of cranial nerves: general characteristics, nuclei, branches, areas of inertia.

149. Portal hepatic vein: formation (roots), tributaries, areas of venous blood collection; topography.

150. Organs of hematopoiesis and immune system (central and peripheral). Lymphatic (lymphoid) ring of the pharynx: tonsils that form it, their topography, structure.

151. The skin. Derivatives of the skin.

152. Lymphatic system: thoracic duct, its roots, topography, tributaries, place of confluence with the venous system; right lymphatic duct, its roots, topography, place of confluence with the venous system.

153. Anterior branches of spinal nerves: composition of fibers; general patterns of structure and topography of the anterior branches of different spinal nerves.

154. Pericardium: structure, cavities, recesses. Heart: projection of the heart on the front wall of the chest, areas of auscultation of heart valves.

155. III pair of cranial nerves: development, general characteristics, nuclei, exit from the brain and from the skull, branches, areas of innervation. Ciliary node: topography, branches, areas of innervation.

156. Sources of blood supply to the teeth of the upper jaw, lower jaw

157. Ear: its parts. Anomalies and developmental options. External ear: its parts and structure.

158. Third ventricle: development, walls, connections; describe and demonstrate on the preparations.

159. Azygos vein: formation, topography, classification of tributaries; visceral and parietal tributaries, areas of venous blood collection.

160. IV pair of cranial nerves: development, general characteristics, nucleus, exit from the brain and from the skull, areas of innervation.

161. Telencephalon: parts, describe and demonstrate on preparations.

162. Portal hepatic vein: formation (roots), areas of venous blood collection; topography.

163. V pair of cranial nerves: development, general characteristics; branches, areas of innervation.

164. Cerebral hemispheres: parts, describe and demonstrate on the preparations.

165. Internal carotid artery: parts, branches, areas of blood supply.

166. Posterior branches of the spinal nerves: fiber composition, topography, areas of innervation.

167. Corpus callosum, its topography, parts, functional significance. The vault: its topography, parts, functional significance; describe and demonstrate on the preparations.

168. VI pair of cranial nerves: development, general characteristics, nucleus, exit from the brain and from the skull, areas of innervation.

169. Olfactory brain: parts, their components, functional significance; describe and demonstrate on preparations.

170. Anterior branches of the external carotid artery, topography, areas of blood supply.

171. Autonomic nervous system (autonomic nervous system): parts, functions, objects of innervation. Differences between somatic and autonomic nervous system.

172. Lateral ventricles: development, parts, topography, walls, connections; describe and demonstrate on preparations.

173. Posterior branches of the external carotid artery, topography, areas of blood supply.

174. VII pair of cranial nerves and intermediate nerve: development, general characteristics, nuclei, topography, branches, areas of innervation. Autonomic nodes of the head associated with the intermediate nerve: their roots, branches, areas of innervation.

175. Cerebral hemispheres: surfaces, lobes, their boundaries; describe and demonstrate on the preparations.

176. Blood supply to the stomach.

177. IX pair of cranial nerves: development, general characteristics, nuclei, exit from the brain and from the skull, branches, areas of innervation.

178. The relief (grooves and gyrus) of the upper lateral surface of the cerebral hemispheres; describe and demonstrate on the preparation.

179. The blood circulation of the fetus.

180. X pair of cranial nerves: development, general characteristics, nuclei, exit from the brain and from the skull, parts, their topography.

181. The relief (grooves and gyrus) of the medial surface of the cerebral hemispheres; describe and demonstrate on the preparation.

182. Internal jugular vein, topography, tributaries.

183. Sacro-coccygeal plexus: formation, topography, classification of branches, areas of innervation.

184. Sympathetic part of the ANS.

185. Blood supply to the brain and spinal cord.

186. The meninges of the brain: name, describe and demonstrate on the preparations. Differences between the dura mater of the brain and spinal cord.

187. Spleen: structure, topography, functions.

188. Parasympathetic part of the ANS.

189. Dura mater of the brain: its processes and sinuses. Describe and demonstrate on the preparations.

190. Diencephalon: parts (according to the International Anatomical Nomenclature - Ukrainian standard); parts (according to phylogenetic development).

191. Sources of venous blood supply to the dura mater sinuses. Ways of venous blood outflow from the dura mater sinuses. Describe and demonstrate on preparations.

192. XI pair of cranial nerves: development, general characteristics, nuclei, exit from the brain and from the skull, areas of innervation.

193. General plan of the structure of motor cranial nerves. Draw a diagram.

194. Organ of smell: structure, functions. Conductive pathway of the olfactory analyzer.

195. General plan of the structure of sensitive cranial nerves. Draw a diagram.

196. Organ of taste: structure, functions.

197. General plan of the structure of mixed cranial nerves. Draw a diagram.

198. Arterial circle of the brain: topography, formation, functional significance.

199. Eye: parts, topography, structure, functions.

200. Describe the ways of sound vibrations. Draw a diagram, demonstrate on preparations.

201. Places of determination of the pulse, show, justify, name the arteries.

202. Conductive pathways of the auditory analyzer. Conductive pathways of balance (vestibular apparatus).

System of current and final control

Control measures for evaluating students' learning activities include current and final control of students' knowledge, skills and abilities.

Current control is carried out by scientific and pedagogical (teaching) staff during practical classes. The main purpose of the current control is to provide feedback between the research and teaching staff and the higher education student in the learning process and to form the learning motivation of higher education students. The information obtained during the current control is used both by the research and teaching staff - to adjust the technologies, methods and means of teaching, and by higher education students - to plan independent work.

Current control can be carried out in the form of oral questioning, solving situational tasks, evaluating the performance of manipulations, written control, written or computer-based testing in practical classes, evaluating the performance of higher education students in discussions, debates, etc.

From the beginning of teaching the discipline, the research and teaching (pedagogical) employee must inform the higher education students of the requirements for current knowledge control.

The teacher must evaluate the academic performance of each student in each class on a four-point (traditional) scale, taking into account standardized, generalized criteria for assessing the knowledge of higher education students (Table 1).

The grade is integrated (all types of work of a higher education student are evaluated, both in preparation for and during the class) according to the criteria that are communicated to higher education students at the beginning of the relevant discipline.

The grade is entered by the teacher in the "Student Attendance and Progress Record" and simultaneously in the "PSMU Electronic Journal" (hereinafter referred to as the EJ) at the end of the lesson or after checking individual control tasks (written works, solving typical or situational tasks and test tasks), but no later than 2 calendar days after the lesson (in accordance with the "Regulations on the Electronic Progress Journal").

Table 1. Standardized generalized criteria for assessing the knowledge of higher education students in PSMU

On a 4-point scale	Assessment in ECTS	Evaluation criteria
5 (perfect)	A	The student shows special creative abilities, is able to acquire knowledge independently, without the help of the teacher finds and processes the necessary information, is able to use the acquired knowledge and skills for decision-making in unusual situations, convincingly argues answers, independently reveals own talents and inclinations, possesses not less than 90 % of knowledge from topics both during the survey and all types of control.
4 (good)	B	The student is fluent in the studied amount of material, applies it in practice, freely solves exercises and problems in standardized situations, independently corrects errors, the number of which is insignificant, has no less than 85% of knowledge on the topic both during the survey and all types of control.
	C	The student is able to compare, summarize, systematize information under the guidance of a scientific and pedagogical worker, in general, independently apply it in practice, control their own activities; to correct mistakes, among which there are significant ones, to choose arguments to confirm opinions, has at least 75% knowledge on the topic both during the survey, and all types of control.
3 (satisfactory)	D	The student reproduces a significant part of theoretical material, shows knowledge and understanding of the basic provisions with the help of a researcher can analyze educational material, correct errors, among which there are a significant number of significant, has at least 65% knowledge of the topic, and during the survey, and of all kinds control.
	E	The applicant has educational material at a level higher than the initial, a significant part of it reproduces on reproductive level. has at least 60% knowledge of the topic both during the survey and all types of control.
2 (unsatisfactory)	FX	The student has the material at the level of individual fragments that make up a small part of the material, has less than 60% knowledge of the topic as during the survey, and all types of control.
	F	The student has the material at the level of elementary recognition and reproduction of individual facts, elements, has less than 60% knowledge of the topic as during surveys, and all types of control.

The form of final control is a credit test.

It is conducted to assess learning outcomes in the discipline. The test is a form of final control of the applicant's mastery of theoretical and practical material in the discipline "In-depth study of normal human anatomy", conducted at the last lesson in the discipline based on the results of the current assessment. This type of final control does not provide for any additional written work, surveys, or testing at the last lesson. Credit is given to higher education students who have scored the required minimum number of points during the current control (grade point average of 3.0 and above), have no unexcused absences from lectures, seminars and practical classes, and have fulfilled all the requirements provided for by the working curriculum in the discipline. The learning outcome is assessed on a two-point scale (pass/fail) and a multi-point scale. The average grade for the current activity is converted into points on a 200-point scale, according to Table 2. The maximum number of points that a student can receive in a discipline is 200. The minimum number of points that a higher education student must score is 122. If the student fulfills the conditions for obtaining a credit, the academic staff member enters "passed" and the number of points that the student has gained in the statement of final semester control and the student's individual curriculum. Information about students who did not receive a credit, with an accurate indication of the reason, is also entered in the "Statement of final semester control" and in the individual curriculum. The reasons for not receiving a credit may be as follows: a) the higher education student has unexcused absences; b) the higher education student attended all practical classes but did not score the minimum number of points for the current academic activity and is not allowed to take the test. After the test, the first copy of the "Statement of final semester control" is handed over to the responsible employee of the dean's office within one day after the test, the second copy is kept at the department. In case of failure to pass the test, the retake of the latter is carried out according to the schedule of the department, which is agreed with the dean's office, but not more than once a day, before the beginning of the next academic semester.

Table №2. Unified table of correspondence of points for current performance scores for the final module control, exam, and the traditional four-point score

Average score for current performance (A)	Points for current success in the module (A * 24)	Points for final module control from the module	Points for the module and / or exam (A*24 + A* 16)	Category ECTS	By 4-point scale
1	2	3	4	5	6
2	48	32	80		
2,1	50	34	84		
2,15	52	34	86		
2.2	53	35	88		
2,25	54	36	90		
2,3	55	37	92		
2,35	56	38	94		
2.4	58	38	96	**F**	
2,45	59	39	98	FX	**2**
2.5	60	40	100		

2,55	61	41	102		
2,6	62	42	104		
2,65	64	42	106		
2,7	65	43	108		
2,75	66	44	110		
2,8	67	45	112		
2,85	68	46	114		
2,9	70	46	116		
2,95	71	47	118		
3	72	50*	122		
3,05	73	50*	123		
3,1	74	50	124	***E***	
3,15	76	50	126		
3,2	77	51	128		
3,25	78	52	130		
3,3	79	53	132		3
3,35	80	54	134		satisfactor
3,4	82	54	136	**D**	
3,45	83	55	138		
3,5	84	56	140		
3,55	85	57	142		
3,6	86	58	144		
3,65	88	58	146		
3,7	89	59	148		
1	2	3	4	5	6
3,75	90	60	150		
3.8	91	61	152		
3,85	92	62	154		
3.9	94	62	156		
3,95	95	63	158	**C**	
4	96	64	160		
4,05	97	65	162		4
4,1	98	66	164		good
4,15	100	66	166		
4,2	101	67	168		
4.25	102	68	170		
4.3	103	69	172		
4,35	104	70	174		
4,4	106	70	176	**B**	
4.45	107	71	178		
4,5	108	72	180		
4.55	109	73	182		
4,6	110	74	184		
4.65	112	74	186		
4,7	113	75	188	**A**	**5**
4,75	1 14	76	190		perfectly
4,8	1 15	77	192		
4,85	1 16	78	194		
4,9	118	78	196		
4,95	119	79	198		
5	120	80	200		

Teaching methods
1. Methods of organising and carrying out educational and cognitive activities.
2. Methods of activation, stimulation and motivation of educational and cognitive
active methods - problematic presentation, partially search, research, heuristic, case studies, business games, conversations, discussions.
3. Methods of control and self-control over the effectiveness of educational and cognitive activity.
Methods and forms of control of students' academic achievements
Oral control:
- individual quiz;
- frontal quiz
Written control
- completion of written tests (answers to questions, individual tasks);
- completion of test tasks of various levels of difficulty.
We use the following methods in the study of elective subjects:
- holding thematic discussions during lectures and practical classes;
- create simulation tasks for better learning of the material ('doctor-patient'), in particular on the most difficult topics;
- we offer students to prepare multimedia presentations on all sections of the discipline;
- verbal (lecture, explanation, narration, conversation, instruction);
- visual (observation, illustration, demonstration);
- practical (self-directed learning with anatomical preparations, mastering the structure of organs, systems of human organs by students; determination of topographic and anatomical relationships of organs and systems of human organs on anatomical preparations; assessment of age, gender and individual characteristics of the structure of human organs);
- research (organisation by the teacher of students' search creative activity by setting new problems and problem tasks).

Methodological support
- educational and professional programme 'Dentistry';
- working programme of elective discipline;
- thematic plan of practical classes;
- multimedia presentations of lecture material;
- tests and control tasks for practical classes in the course of the discipline;
- questions and tasks to control the learning of all sections;
- bone and wet preparations;
- interactive multimedia complex 'Oniko'.

Recommended reading

Basic (available at the library of PSMU)

1. Human Anatomy. In three volumes. Volume 1 / Edited by V.G. Koveshnikov. – 2 nd ed., corr.and suppl. - Lviv: «Magnolia 2006», 2021. – 328p.
2. Human Anatomy. In three volumes. Volume 2 / Edited by V.G. Koveshnikov. - 2 nd ed., corr.and suppl. - Lviv: «Magnolia 2006», 2021. – 248p.
3. Human Anatomy. In three volumes. Volume 3 / Edited by V.G. Koveshnikov. - 2 nd ed., corr.and suppl. - Lviv: «Magnolia 2006», 2021. – 384p.
4. Human Anatomy: textbook / Cherkasov V.G., Herasymiuk I.Ye., Holovatskyi A.S., Kovalchuk O.I. [et al.]. – Vinnytsia Nova Knyha, 2018. – 464 p.

Supplementary

1. Gray′s anatomy for students / Richard L. Drake, A. Wayne Vogl, and Adam W. M. Mitchell; illustrations by Richard M. Tibbitts and Paul E. Richardson; photographs by Ansell Horn. – 2nd ed. 2012 – 1103p.

2. Sobotta Atlas of Human Anatomy / Edited by R. Putz and R. Pabst, 14th ed. – Elsevier GmbH, Munich, 2008 . – 895p.
3. Grant′s atlas of anatomy ⁄ Anne M.R. Agur, Arthur F. Dalley II, 14th ed. - Baltimore: Wolters Kluver, 2017. – 864 p.
4. Martini Frederic H. Martini′s atlas of the human body, 8th ed. – Pearson Education, 2009. – 250p.
5. Atlas of Human Anatomy / Frank H. Netter; 7nd ed. // Elsevier Inc, 2019. – 548p.
6. Anatomy of the locomotor system: study visual guide / O. A. Sherstiuk, N. L. Svintsytska, K. A. Lazarieva, A. L. Katsenko. – Poltava, 2020. – 218 p.
7. Svintsytska N. L. Morphofunctional characteristic of the skull with a clinical aspect: study guide / N. L. Svintsytska, V. H. Hryn. O. I. Kovalchuk. – Poltava, 2020. – 205 p.
8. Splanchnology with clinical applications. Endocrine glands: study visual guide / S. M. Bilash, N. L. Svintsytska, K. A. Lazarieva, V. H. Hryn, V. P. Bilash. – Poltava, 2022. –167 p.
9. Cardiovascular system. Organs of immune system: Study visual guide for foreign students of higher medical educational institutions of Ukraine / R. L. Ustenko, N. L. Svintsytska, V. H. Hryn, A. L. Katsenko, A. V. Piliuhin. – Poltava, 2022. – 213 p.
10. Svintsytska N. L. Anatomy of the Urinary and Reproductive Systems.Structural Features in Childhood. Abnormalities / N. L. Svintsitskaya, V. H. Hryn, A. L. Katsenko. – Вінниця: Hova Knyha, 2021. – 160 p.

Information resources

http://www.umsa.edu.ua/kafhome/anatomy/kaf_anatomy_download.html
http://anatom.ua/basis/ukr/
http://anatom.ua/basis/rus/
https://human.biodigital.com/signin.html

E-educational resources

2. Inner Body : [educational site]. - Access mode : http://www.innerbody.com/ Anatomy Atlases is curated by Michael P. D'Alessandro, M.D. and Ronald A. Bergman, Ph.D. - Access mode : http://www.anatomyatlases.org/
3. Acland's Video Atlas of Human Anatomy / Wolters Kluwer. - Access mode : https://aclandanatomy.com/
4. 3d anatomy atlas. Human anatomy physiology. Human body anatomy 3d. Anatomy physiology flash cards. Atlas of human anatomy. Gray s anatomy. - Access mode : http://www.anatomatlas.com/
5. About Healthline Body Maps : interactive visual search tool/Healthline Media. - Access mode :http://www.healthline.com/human-body-maps/male
6. Zygote Body : 3D anatomical models of the human body / Zygote Media Group. - Access mode : www.zygotebody.com

Developers

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