НАЦІОНАЛЬНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ імені О.О. БОГОМОЛЬЦЯ

Educational and Scientific Institute of Medicine

Department of Descriptive and Clinical Anatomy

Syllabus of the academic discipline

"Human Anatomy"

Educational level: second (master's)

Field of knowledge: I "Healthcare and social security"

Specialty: I2 "Medicine"

Educational program: Educational and professional program of the second (master's) level of higher education "Medicine" in the specialty I2 "Medicine"

2026 - 2027 academic year

Department of Descriptive and Clinical Anatomy
Contacts: https://nmuofficial.com/zagalni-vidomosti/kafedri/kafedra-anatomyy-cheloveka/
Syllabus of the academic discipline: "Human Anatomy".
Level of higher education: second (master's) level of higher education.
Specialty: I2 "Medicine".
Educational program: Educational and professional program of the second (master's) level of higher education "Medicine" in the specialty I2 "Medicine".

1. Course abstract:

Year of study: 1st year of study. Semester(s): 1st and 2nd.
Total number of hours - 390 academic hours;
lectures - 40 academic hours,
practical - 192 academic hours,
seminars - 8 academic hours;
independent work – 150 academic hours;
number of ECTS credits – 13.
Language: English.
Form of study: ofline and online.

The purpose of the discipline involves the acquisition by each student of knowledge of anatomy in the world of natural science ideas about the structure and functions of the human body as a whole, the ability to use the acquired knowledge in the further study of other fundamental sciences of medicine, and in the practical activities of the doctor.

The purpose of studying human anatomy – the ultimate goals are established on the basis of educational professional program training of a doctor in the specialty in accordance with the block of its content module (natural science training) and are the basis for building the content of the discipline. The description of goals is formulated through skills in the form of target tasks (actions). On the basis of the ultimate goals for each content module, specific goals are formulated in the form of certain skills (actions), target tasks that ensure the achievement of the ultimate goal of studying the discipline.

The tasks of the discipline in accordance with the educational program - the study of the discipline involves the formation of competencies among students**.**

General competencies (GC).

GC 1. Ability to abstract thinking, analysis and synthesis.

GC 2. Ability to learn and master modern knowledge.

GC 3. Ability to apply knowledge in practical situations.

GC 4. Knowledge and understanding of the subject area and understanding of professional activity.

GC 5. Ability to adapt and act in a new situation.

GC 6. Ability to make informed decisions

GC 7. Ability to work in a team.

GC 8. Interpersonal skills.

GC 9. Ability to communicate in the state language both orally and in writing.

GC 10. Ability to communicate in a foreign language.

GC 11. Skills in the use of information and communication technologies.

GC 12. Certainty and perseverance regarding the tasks and responsibilities taken. GC 13. Ability to act socially responsibly and consciously.

GC 14. Ability to act on the basis of ethical considerations (motives).

Special (professional, subject) competencies (PC)

PC 1. Ability to interpret the result of laboratory and instrumental studies.

PC 2. Ability to design the process of providing medical care: to determine the approaches, plan, types and principles of treatment of diseases of organs and tissues of the oral cavity and maxillofacial region.

Program learning outcomes (PLO)

PLO 1. To form goals and determine the structure of personal activities.

PLO 2. Adhere to a healthy lifestyle, use the techniques of self-regulation and self-control.

PLO 3. To be aware of and guided in their activities by civil rights, freedoms and duties, to raise the general educational cultural level.

PLO 4. Comply with the requirements of ethics, bioethics and deontology in their professional activities.

PLO 5. Organize the necessary level of individual safety (own and caregivers) in case of typical dangerous situations in the individual field of activity.

Prerequisites of the discipline:

based on the study of biology, physics, chemistry and general education disciplines of secondary school, colleges, gymnasiums, medical schools.

Corequisites of educational discipline:

based on the study by students of medical biology, histology, cytology and embryology, biophysics, Latin, foreign language, ethics, deontology, philosophy, hygiene, ecology and integrates with these disciplines.

Post-requisitions of the discipline:

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 the process of further study of all clinical disciplines and in future professional activities.

Contents of the discipline

According to the curriculum, the study of human anatomy is carried out in 1-2 semesters. The program of the discipline "Human Anatomy" is structured 17 content modules: Introduction to anatomy. Anatomy of skeletal bones. Connection of the bones of the skeleton. Myology. Anatomy of the digestive system. Anatomy of the respiratory system. Anatomy of the urinary system. Anatomy of the reproductive systems. Anatomy of the organs of the immune and endocrine systems. Anatomy of the spinal cord. Anatomy of the brain. Sense organs. Cranial nerves. Anatomy of the heart. Vessels of the head and neck. Vessels and nerves of the body. Vessels and nerves of the upper and lower limbs.

CONTENT OF DISCIPLINE.

THEMATIC PLAN OF LECTURES OFHUMAN ANATOMY ON 2026-2027 YEAR FOR STUDENTS OF MEDICAL FACULTY

№	Lecture Topic	Number of hours
1.	Introduction to anatomy. History of anatomy. Kyiv Anatomical School. General osteology.	2
2.	General arthrology. General myology. Muscles of the head, neck, trunk, limbs.	2

3.	Introduction to the splanchnology. General anatomy of the digestive system.	2
4.	General anatomy of the respiratory system. Pleura. Mediastinum.	2
5.	General anatomy of the urinary system. Anatomy of the kidney. Anatomy of the urinary tract.	2
6.	General anatomy of the male genital system. General anatomy of the female genital system. Perineum.	2
7.	General anatomy of immune organs. General anatomy of endocrine organs.	2
8.	Introduction to the CNS. Embryogenesis of spinal cord and brain. Spinal cord: Internal and external structure.	2
9.	Anatomy of the rhomboid brain. Myelencephalon. Pons. Cerebellum. Rhomboid fossa. IV ventricle.	2
10.	Anatomy of the middle brain. Anatomy of the diencephalon.	2
11.	Anatomy of the prosencephalon. Basal nuclei. White matter of hemispheres of the telencephalon. Relief and localization of functions in the cortex of the hemispheres of the telencephalon. Lateral ventricles.	2
12.	Layers of the brain and spinal cord. Formation and circulation pathways of spinal fluid. Pathways of CNS.	2
13.	General anatomy of the organs of the senses. Anatomy of the organ of vision. Anatomy of the organ of hearing and balance.	2
14.	General anatomy of cranial nerves. Vegetative ganglions of the head.	2
15.	Introduction to the cardiovascular system. Anatomy of the heart.	2
16.	General anatomy of arterial vessels.	2
17.	General anatomy of venous vessels.	2
18.	Anatomy of the lymphatic system.	2
19.	General anatomy of the autonomic part of the peripheral nervous system.	2
20.	General anatomy of the peripheral nervous system.	2
	Total	**40 hours**

5. Topics of practical classes for the course.

	Topics of practical classes	Hours
1.	Anatomical nomenclature. Axes and planes of the human body. Shape and proportions of the human body. General features of the vertebrae.	3
2.	Characteristic features of the structure of the cervical, thoracic, lumbar vertebrae.	3
3.	Sacrum, coccyx, ribs, sternum.	3
4.	Primary and secondary nuclei of ossification. Anomalies of bone development.	3
5.	Frontal, parietal, occipital, ethmoid bones.	3
6.	Sphenoid, temporal bone. Temporal bone canals.	3
7.	Bones of the facial skull.	**3**
8.	Eye socket, bony nasal cavity. Bony palate.	3
9.	Seminar. Skull as a whole. External and internal base of the skull. Temporal, infratemporal, pterygopalatine fossae.	3
10.	Bones of the upper limb.	3
11.	Bones of the lower limb.	3
12.	Connection of the bones of the trunk. Connection of the bones of the skull.	3
13.	Joints of the upper limb.	3
14.	Joints of the lower limb.	3
15.	Head muscles. Diaphragm.	3
16.	Neck muscles. Topography of the neck, fascia and cellular spaces.	3
17.	Upper limb muscles: pectoral girdle muscles, shoulder muscles, forearm muscles.	3
18.	Hand muscles. Upper limb fascia. Topography of the upper limb.	3

19.	Lower limb muscles: pelvic girdle muscles, thigh muscles, calf muscles.	3
20.	Foot muscles. Lower limb fascia and lower limb topography.	3
21.	Summary of the educational material “Anatomy of the musculoskeletal system”. Visualization of anatomical structures using modern methods of clinical research.	**3**
22.	Anatomy of the oral cavity. Palate. Anatomy of the tongue.	3
23.	Anatomy of the oral glands. Teeth.	3
24.	Anatomy of the pharynx and esophagus. General anatomy of the abdominal cavity. Regions of the anterior abdominal wall. Anatomy of the stomach.	3
25.	Anatomy of the small and large intestines.	3
26.	Anatomy of the liver and pancreas.	3
27.	Anatomy of the peritoneum.	3
28.	Anatomy of the external nose, nasal cavity, and larynx.	3
29.	Anatomy of the trachea, main bronchi, and lungs. Pleura. Mediastinum.	3
30.	Anatomy of the urinary system organs (kidneys, ureters, urinary bladder, urethra).	3
31.	Anatomy of the male reproductive organs.	3
32.	Anatomy of the female reproductive organs. Perineum. Mammary glands.	3
33.	Introduction to the CNS. Anatomy of the spinal cord: external and internal structure. Developmental anomalies.	
34.	Embryogenesis of the brain. Medulla oblongata, pons.	3
35.	Cerebellum. Fourth ventricle. Rhomboid fossa.	3
36.	Anatomy of the midbrain and diencephalon.	3
37.	Olfactory brain. Basal nuclei. Lateral ventricles.	3

38.	White matter of the cerebral hemispheres. Surface features of the cerebral cortex. Functional localization in the cerebral cortex.	3
39.	Meninges of the brain and spinal cord. Formation and circulation pathways of cerebrospinal fluid.	3
40.	Conducting pathways of the CNS.	3
41.	Anatomy of the eye and its structures.	3
42.	Anatomy of the ear. Auditory and vestibular pathways.	3
43.	Summary of the study material: "Central nervous system and sense organs." Visualization of anatomical structures using modern clinical examination methods. TEST ASSESSMENT	**3**
44.	Cranial nerve pairs I, II, III, IV, VI, and VIII.	3
45.	Cranial nerve pairs V, VII, and IX. Autonomic ganglia of the head.	3
46.	Cranial nerve pairs X, XI, and XII.	
47.	Cardiac anatomy: development, topography, anatomy of the chambers, and structure of the heart wall. Systemic and pulmonary circulations. Fetal circulation.	3
48.	Cardiac anatomy: blood supply and innervation of the heart; pericardium. Projection of heart borders and valves onto the anterior chest wall; sites for optimal auscultation of valve function.	**3**
49.	The aorta and its parts. Branches of the aortic arch. Common and external carotid arteries.	3
50.	Internal carotid artery and subclavian arteries.	3
51.	Veins of the head and neck. Internal jugular vein: intracranial and extracranial tributaries. External jugular vein. Anterior jugular vein. Superior vena cava: roots and tributaries. Brachiocephalic veins. Lymph nodes of the head and neck: classification.	3
52.	Seminar. Vascularization and innervation of head and neck organs. TEST.	**3**
53.	The aorta and its parts. Thoracic aorta: topography. Branches of the thoracic aorta and their areas of supply. Internal thoracic artery (branch	3

	of the subclavian artery): topography, branches, and areas of supply. Intra-systemic and inter-systemic arterial anastomoses.	
54.	Abdominal aorta: topography and classification of branches. Pelvic arteries. Intrasystemic arterial anastomoses.	3
55.	Hepatic portal vein: topography, roots, tributaries, and areas of venous drainage. Branching of the hepatic portal vein within the liver. Intrasystemic and intersystemic venous anastomoses.	3
56.	Lymphatic ducts: thoracic duct, right lymphatic duct. Roots, topography, and sites of entry into the venous system.	
57.	Lymphatic vessels and nodes of the trunk.	3
58.	Autonomic division of the peripheral nervous system.	3
59.	Visceral plexuses: craniocervical, thoracic, abdominal, and pelvic parts.	3
60.	Arteries, veins, lymphatic vessels, and nodes of the upper limb: classification, topography, branches, areas of blood supply, and anastomoses.	3
61.	Arteries, veins, lymphatic vessels, and nodes of the lower limb: classification, topography, branches, areas of blood supply, and anastomoses.	3
62.	Spinal nerves. Cervical plexus.	3
63.	Brachial plexus.	3
64.	Thoracic nerves. Lumbar plexus.	3
65.	Sacral plexus. Coccygeal plexus.	3
66.	Seminar: Vascularization and innervation of the trunk and the upper and lower limbs.	**2**
67.	Assessment of practical skills. FINAL TEST.	**3**
Total:		**200**

6. Independent Work

Organization of Students' Independent Work

Students carry out independent work systematically in preparation for every practical, review, and final class, in accordance with the thematic plan for the "Human Anatomy" course. Students must master the core concepts and terminology related to the lesson topic, study the issues outlined in the methodological guidelines, and complete the assigned independent work tasks.

When preparing for each practical class, students independently study the department's methodological materials (available on the Likar_NMU educational platform):

 relevance of the topic;

 specific objectives aimed at developing student competencies in accordance with the approved "Human Anatomy" course curriculum and the study plan (developed based on the Higher Education Standard for the second (Master's) level of higher education);

 fundamental questions necessary for mastering the course material (Item 1);

 the list of key anatomical terms, parameters, and characteristics to be mastered in preparation for the practical class (presented in the methodological materials in Ukrainian, English, and Latin at https://anatom.ua/nomina-anatomica/ (Item 2.1)).

 questions for assessing students' initial level of knowledge (Section 2.2);

 review questions for assessing the final level of knowledge (Section 2.3);

 standardized practical skills (Section 2.4);

 content of the study material for the topic (Section 3);

 illustrations, diagrams, and drawings involving the labeling of anatomical structures relevant to the practical session topic (Sections 4.1, 4.2);

 30 "KROK-1" Format A test items (clinically oriented situational tasks/clinical vignettes with a single correct answer) corresponding to the practical session topic (Section 4.3);

During preparation for each practical class, the student independently completes practical tasks found in the manual *Human Anatomy: Monitoring Student

Independent Preparation for Practical Classes*:

- working with illustrations, diagrams, and drawings by coloring and labeling anatomical structures relevant to the practical class topic;
- identifying anatomical structures visualized through modern clinical imaging methods, such as MRI, CT, and X-ray scans.

In preparation for review and final assessment classes—and to systematize, consolidate, and verify the mastery of course material within a specific content module—the student works through:

- the comprehensive bank of test questions recommended by the department for independent study and hosted on the *Likar_NMU* educational platform;
- the module "Visualization of Anatomical Structures via Modern Clinical Imaging Methods" (computed tomography (CT), magnetic resonance imaging (MRI), radiography, and angiography), in accordance with the assigned independent study tasks.

Electronic resources:https://likar.nmu.kyiv.ua./
www.anatom.ua
https://nmuofficial.com/zagalni-vidomosti/kafedri/kafedra-anatomyy-cheloveka/informatsiya-dlya-studentiv-6/

List of topics recommended for independent study

Questions for independent study	**Hours**
I. Anatomy of the musculoskeletal system	27

• Ossification centers of the skeleton. Age-related characteristics and developmental anomalies of bones. • Radiographic anatomy of bones and joints. Visualization characteristics of osteoarticular structures using modern clinical imaging methods. • Skull base: foramina, canals, and fissures, and their contents. Pathways for the spread of purulent-inflammatory processes. • General arthrology. Characteristics of bone joint types. Structural features and functional significance of various types of joints. • Topography of the neck. Fasciae, interfascial spaces, and connective tissue spaces. Pathways for the spread of purulent-inflammatory processes. • Musculofascial compartments, canals, and topographic structures of the upper and lower limbs. Anatomical pathways for the spread of pathological processes. • Inguinal canal. Weak points of the anterior abdominal wall. Anatomical prerequisites for hernia formation. • Diaphragm: openings and weak points. Pathways for the spread of pathological processes between the thoracic and abdominal cavities.	
II. Splanchnology	3 6
• Anatomical variations in the position of the vermiform appendix. Topographic-anatomical features and clinical significance. • Peritoneum: ligaments, folds, mesenteries, omenta, recesses, pouches, and spaces. Pathways for the spread of pathological processes within the abdominal cavity. • Topographic-anatomical features of abdominal organs. Pathways for the spread of purulent-inflammatory processes and pathological fluid.	

• Liver and biliary tract. Bile drainage pathways and anatomical factors influencing the spread of pathological processes. • Segmental structure of the lungs. Bronchopulmonary segments and their clinical significance. • Pleura: pleural recesses and their clinical significance. Topographic-anatomical relationships between the pleura and thoracic organs. • Mediastinum: divisions, contents, and topographic-anatomical relationships. Pathways for the spread of pathological processes between the thoracic cavity, mediastinum, and neck. • Kidney: segmental structure and positional variations. Developmental anomalies. • Ureter: physiological constrictions and their clinical significance. Anatomical factors predisposing to calculus retention. • Topographic-anatomical relationships of pelvic organs. Connective tissue spaces and pathways for the spread of purulent-inflammatory processes. • Prostate gland: topography, fascial and connective tissue structures, clinical significance. • Male genital tract: topography and sperm transport pathway. • Female reproductive organs: topographic-anatomical relationships and pathways of pathological process spread. • Perineum: fasciae, fascial spaces, and topographic-anatomical features of the male and female perineum; pathways of spread for purulent-inflammatory processes. • Mammary gland: topographic-anatomical relationships and clinically significant structural features. • Imaging anatomy of thoracic, abdominal, and pelvic organs: radiography, CT, and MRT.	

III. Central nervous system and sense organs P SEP	3 3
• Ventricular system of the brain. Formation, circulation, and outflow of cerebrospinal fluid. Anatomical prerequisites for the development of hydrocephalus. • Meninges of the brain and spinal cord. Intermeningeal spaces and subarachnoid cisterns. Pathways of spread for pathological processes. • Venous sinuses of the dura mater. Venous anastomoses and pathways for the spread of infection from the facial region to the cranial cavity. • Conducting pathways of the central nervous system. Topography, functional significance, and principles of topical diagnosis of lesions. • Functional localization in the cerebral cortex. Clinical significance of functional localization. • Internal capsule: topography, structure, and functional significance. Clinical manifestations of lesions affecting it. • CT and MRI anatomy of the brain. Visualization of the ventricular system, meninges, cisterns, and major brain structures. • Eye: topographic-anatomical relationships of orbital structures. Pathways of spread for pathological processes from the orbit and adjacent areas. • Visual analyzer: conducting pathway, its segments, and principles of topical diagnosis of lesions. • Ear: topographic-anatomical relationships of the external, middle, and inner ear. Pathways of spread for pathological processes. • Auditory and vestibular analyzers: conducting pathways and principles of topical diagnosis of lesions affecting them.	

• Gustatory analyzer: receptor apparatus, conducting pathway, and innervation of the tongue. • Olfactory analyzer: receptor apparatus, conducting pathway, and its connections with other brain structures. • Somatosensory system: types of general sensation, receptor apparatus, and conducting pathways. Principles of topical diagnosis of sensory disturbances. • Skin and its derivatives. Receptor apparatus of the skin, types of cutaneous sensation, and its innervation. • Imaging anatomy of sensory organs: CT and MRT anatomy of the orbit, the organ of hearing, and adjacent structures.	
IV. Heart and vessels	3 0
• Blood supply to the heart. Coronary arteries, their main branches, branching patterns, and anastomoses. Clinical significance of coronary circulation. • Features of fetal circulation. • Venous drainage of the heart. Coronary sinus, its tributaries, and venous drainage pathways. • Lymphatic drainage of the heart. Lymphatic vessels and regional lymph nodes. • Cardiac conduction system. Topography, blood supply, and clinical significance. • Innervation of the heart. Sympathetic and parasympathetic innervation; cardiac plexus. • Projection of heart borders and valves onto the anterior chest wall. Topographic basis for valve auscultation. • Arterial anastomoses and collateral circulation. Intrasystemic and intersystemic anastomoses; their clinical significance.	

• Blood supply to the brain. Cerebral arterial circle (Circle of Willis) and collateral circulation pathways. • Arterial anastomoses of the upper and lower limbs. Collateral blood supply pathways and their clinical significance. • Branching patterns of major arteries. Clinical significance of vascular anatomical variations. • Venous anastomoses. Cavocaval and portocaval anastomoses; their topography and clinical significance. • Superficial and deep veins of the limbs. Venous anastomoses and collateral venous drainage pathways. • Venous sinuses of the dura mater and venous anastomoses of the head. Routes of infection spread from the facial region to the cranial cavity. • Lymphatic ducts: thoracic duct and right lymphatic duct. Topography, roots, and sites of entry into the venous system. • Regional lymph nodes and lymphatic drainage pathways from major body regions and organs. • Lymphatic drainage from the head and neck, thorax, abdominal cavity, and limbs. Clinical significance of regional lymph nodes. • Angiographic anatomy of vessels. Visualization characteristics of arteries, veins, and the lymphatic system using modern clinical imaging methods.	
V. Peripheral nervous system	2 4
• Topography of cranial nerves. Canals, foramina, and fissures of the skull base as pathways for cranial nerves. • Areas of innervation and clinical significance of cranial nerve lesions. Principles of topical diagnosis. • Autonomic ganglia of the head: topography, roots, and areas of postganglionic innervation.	

• Interconnections of cranial nerves with autonomic ganglia and plexuses. • Spinal nerve: formation, branches, areas of innervation, and principles of nerve plexus formation. • Cervical plexus: topography, major nerves, areas of innervation, and clinical significance. • Brachial plexus: topography, formation, major nerves, and their pathways. Clinical significance of lesions. • Lumbar and sacral plexuses: topography, major nerves, areas of innervation, and clinical significance. • Topographic-anatomical relationships of peripheral nerves with muscles, fasciae, blood vessels, and bony structures. Anatomical sites of potential nerve compression and injury. • Nerves of the upper and lower limbs: topography, areas of innervation, and clinically significant sites of injury. • Autonomic division of the peripheral nervous system: sympathetic, parasympathetic, and enteric components. Principles of autonomic innervation organization. • Autonomic ganglia and nerve plexuses: topography, connections, and functional significance. • Visceral nerve plexuses of the thoracic, abdominal, and pelvic cavities. Topographic-anatomical relationships with the organs. • Sympathetic trunk: topography, ganglia, and connections with peripheral nerves and visceral plexuses. • Parasympathetic innervation of organs. Cranial and sacral parts of the parasympathetic division. • Visualization of peripheral nerves using modern clinical imaging methods. Ultrasound and MRI anatomy of nerves and nerve plexuses.	
Total	**150**

7. Individual Assignments

Individual assignments are creative and exploratory in nature; they foster the development of students' cognitive engagement and are carried out either independently or under the guidance of an instructor. These are supplementary tasks that allow students to deepen their knowledge of the discipline and earn extra points—for example, by presenting at a conference, publishing an abstract related to the department's research topic, or winning a prize in a subject-specific Olympiad at the university or national level.
The maximum number of points awarded to students for individual work is 6.8.

Teaching methods: verbal, visual, practical, analytical, inductive, semi-inquiry, deductive, explanatory-demonstrative, reproductive, and research-based.

9. Assessment

Assessment of student performance in the "Human Anatomy" course is conducted in accordance with the requirements of the course syllabus and the instructions regarding the student assessment system within the credit-module organization of the educational process, as approved by the Ministry of Health of Ukraine.

Point allocation and distribution scheme

Assessment of student performance in the "Human Anatomy" course is conducted in accordance with the requirements of the course syllabus and the instructions regarding the student assessment system within the credit-module organization of the educational process, as approved by the Ministry of Health of Ukraine.

The maximum number of points a student can earn for ongoing coursework is 80. This is calculated by multiplying the points corresponding to a grade of "5" by the number of practical classes and adding points for individual work.

The minimum number of points a student can earn for ongoing coursework in the discipline is calculated by multiplying the points corresponding to a grade of "3" by the number of practical classes.

At each practical class, the student's performance is assessed as follows:

"5" – 1.1 points (100%)

"4" – 0.9 points (80%)

"3" – 0.8 points (70%)

"2" – 0 points

The maximum number of points for a student's ongoing academic performance is 80 [number of practical classes in the course: 67] = 74 points (67 practical classes × 1.1 points) + 6 points for individual work.

The number of points for a student's ongoing academic performance (assuming a grade of "3" is received in every class) is 53.6 points [number of practical classes in the course: 67] = 67 × 0.8.

Distribution of points awarded to students during ongoing assessment:

Tradicional grade	**Points**	**Conversion into points**			
		Test control	**Oral questioning**	**Practical skells**	**ISW***
«5»	1,1	0,22	0,33	0,33	0,22
«4»	0,9	0,18	0,27	0,27	0,18
«3»	0,8	0,16	0,24	0,24	0,16
«2»	0	0	0	0	0

Assessment of Student Independent Work

Material designated for independent study—assigned in conjunction with a practical class—is evaluated during the ongoing assessment of the topic at the corresponding in-class session.

Topics assigned for independent study that are not covered in scheduled classroom sessions are evaluated during practical classes and ongoing assessments.

Assessment of Individual Student Work

Points awarded for individual work are added to the student's total score for ongoing academic performance. Students may earn points for individual work by producing published materials (abstracts, articles), presenting at conferences, or

placing in the top ranks of subject-specific Olympiads held at their own higher education institution or among higher education institutions across Ukraine.

The maximum score for individual student work is 6 points.

FINAL ASSESSMENT

General Provisions

- The final assessment for the "Human Anatomy" course is conducted in the form of an exam following the completion of all topics outlined in the course syllabus.
- The exam aims to comprehensively evaluate the extent to which higher education students have mastered theoretical material and developed practical skills, as well as their ability to apply anatomical knowledge to analyze the structure of organs and organ systems, topographic-anatomical relationships, and clinical-anatomical scenarios.
- The exam is administered in accordance with the relevant Order during the examination period, as per the approved schedule.

Conditions for Admission to the Exam

Higher education students are admitted to the semester exam if they:

- have fulfilled all requirements of the curriculum and the syllabus for the "Human Anatomy" course;
- attended classes and have no more than 25% of classes missed;
- made up for missed classes in accordance with established procedures;
- completed all types of academic work prescribed by the course syllabus;
- accumulated the minimum required number of points for ongoing academic performance;
- adhered to academic integrity requirements during the course of study.

Exam Format

The exam is conducted using a hybrid format (in-person and remote).

- **In-person format:**

The in-person exam takes place at the Department of Descriptive and Clinical Anatomy of Bogomolets National Medical University (NMU) at the following address:

34 Beresteiskyi Avenue, Morphological Building.

 Remote format:

The remote exam is conducted via the Zoom platform and the Likar_NMU educational platform, in accordance with the relevant order, for higher education students who:

 are performing military service within the Armed Forces of Ukraine or other defense force units;

 are currently abroad and have provided a copy of a document confirming their legal status in their country of residence.

When taking the exam remotely, the student is required to ensure a stable internet connection, keep the camera and microphone on, enable identity verification, and adhere to academic integrity requirements.

- ✓ **1. Exam Structure**
- ✓ **The "Human Anatomy" course exam consists of three stages:**
- ✓ **Stage I – test-based assessment;**
- ✓ **Stage II – answering questions from the exam paper;**
- ✓ **Stage III – oral interview involving the assessment of practical skills.**

STAGE I – TEST-BASED ASSESSMENT

Stage I of the exam involves students completing Format A test tasks (KROK-1) and constitutes part of the final assessment for the "Human Anatomy" course.

Test-based assessment aims to evaluate students' mastery of the course's fundamental theoretical material and serves as a crucial element in the systematic preparation of higher education students for the "Krok-1" integrated test exam. The test items were developed by the Department of Descriptive and Clinical Anatomy in accordance with the "Human Anatomy" course curriculum, the schedule of practical classes, content modules, and intended learning outcomes. They also take into account the content structure of the Krok-1 integrated test exam—established pursuant to the Higher Education Standard for the specialty 222 "Medicine" (second/master's level), approved by Order No.

1197 of the Ministry of Education and Science of Ukraine dated November 8, 2021. This standard defines the list of specialized (professional, subject-specific) competencies (Axis 2 of the detailed exam content structure) as well as the thematic sections and topics whose study fosters the acquisition of these competencies and whose understanding and application are assessed during the exam (Axis 1 of the detailed exam content structure).

- Throughout the course, students have the opportunity to systematically work through test questions available on the Likar_NMU learning platform while preparing for practical classes and ongoing knowledge assessments.
- The test assessment takes place during the final practical class of the course, in accordance with the approved schedule. At the department's discretion, the test may be administered in written form, in a computer lab, or via the Likar_NMU learning platform (particularly if the educational process involves remote technologies or if other circumstances prevent in-class testing).
- Each individual test set is generated either by the department or automatically by the Likar_NMU platform through the randomized selection of questions from the approved test question database.
- Each individual test set consists of 40 "Type A" test questions covering the topics of the course's content modules.
- One minute is allotted for answering each test question.
- Each correct answer is awarded 1 point.
- ✓ The maximum score for the test assessment is 40 points.
- ✓ Students who did not complete or pass the test assessment during the final practical class have the right to retake it before the start of the examination session on a day designated by the department. The retake follows the same procedure but uses a different set of test questions from the department's approved database.

STAGE II – ANSWERING THE EXAMINATION TICKET QUESTIONS

- ✓ Stage II of the exam assesses the student's level of theoretical knowledge regarding the course material of the "Human Anatomy" discipline.

- ✓ The student selects the examination ticket number independently.
- ✓ The examination ticket contains 4 questions covering the main sections of the discipline and corresponding to the topics of lectures, practical classes, and independent student work.

The student:

• provides a written answer to one question from the exam paper using Latin terminology in accordance with anatomical nomenclature—part of the preparation for the "Krok-1" integrated test exam (given that the test questions for the "Human Anatomy" discipline include Latin anatomical terms);

• provides an oral answer to the remaining questions on the paper;

• answers the examiner's clarifying questions if necessary.

The assessment of the answer takes into account:

• the completeness of the answer;

• the correct use of anatomical terminology;

• knowledge of Ukrainian and Latin anatomical nomenclature;

• understanding of the structure, function, development, blood supply, innervation, and topography of anatomical structures;

• the logic and coherence of the answer.

STAGE III — ASSESSMENT OF PRACTICAL SKILLS

Stage III of the exam evaluates the ability of higher medical education students to apply knowledge from fundamental educational components and assesses the level of proficiency in practical skills, based on the list approved by the department.

- The practical component of the exam is a crucial element in developing clinically oriented thinking, consolidating theoretical knowledge, and preparing students for the "Krok-1" integrated test exam.
- The assessment of practical skills is conducted using standardized individual exam tasks, compiled by the department in accordance with the approved list of practical skills.
- Each individual task comprises 10 anatomical structures marked with

numerical indicators on:

- anatomical drawings;
- anatomical diagrams;
- anatomical specimens;
- materials used for visualizing anatomical structures via modern clinical imaging methods (CT, MRI, X-rays, etc.).

 The student must identify each marked anatomical structure and record its name in Ukrainian and in accordance with the International Anatomical Terminology (in Latin).

Assessment is conducted separately for each anatomical structure:

- 2 points – correct identification of the anatomical structure in both Ukrainian and Latin;
- 1 point – correct identification of the anatomical structure in either Ukrainian or Latin only;
- 0 points – incorrect answer or no answer provided.

The maximum score for Stage III is 20 points.

 Preparation materials for Stage III of the exam—specifically the module "Visualization of Anatomical Structures Using Modern Clinical Imaging Methods"—are available on the O.O. Bogomolets NMU department webpage and the Likar_NMU educational platform.

 The use of standardized exam tasks ensures objective assessment, uniform exam conditions for students, and the evaluation of their ability to identify anatomical structures using both classic anatomical images and materials obtained through modern clinical imaging methods.

Sample Examination Card

EXAMINATION CARD No. ___

1. Hard palate: development, structure, innervation, and blood supply of the mucous membrane. Developmental anomalies of the hard palate.
2. Topography of the neck: regions, triangles, spaces, and their contents.
3. Heart: development, external structure; heart chambers and the vessels

communicating with them.

4. Retina of the eyeball: structure, functions. Cranial nerve II. Visual pathways.

EXAM EVALUATION CRITERIA

Exam Stage I – Test-based assessment

Correspondence of the number of correct answers to the traditional grading scale

Grade	Number of correct answers	Percentage of correct answers
«5»	36 – 40	90 – 100%
«4»	32 – 35	80 – 89%
«3»	28 – 31	70 – 79 %
«2»	Less 28	Less 70%

Stage II of the exam – Evaluation of the answer to the exam paper question

Each question on the exam paper is evaluated separately.

Grade	Points	Characteristics of answer
«5»	15 points	The student addresses the topic comprehensively, logically, and with sound reasoning; uses anatomical terminology correctly; and demonstrates a deep understanding of the structure, function, topography, blood supply, innervation, and clinical significance of the anatomical structures.
«4»	13 points	The student addresses the topic generally correctly but makes minor inaccuracies that do not distort the overall meaning of the answer.

«3»	10,5 points	The student demonstrates a minimally sufficient level of knowledge; the response is incomplete and contains some significant inaccuracies, yet the core content of the topic is covered.
«2»	0 points	The student fails to address the topic, makes gross errors, or is unable to provide an answer.

Stage III of the exam—the assessment of practical skills—is conducted based on the following criteria:

Result of answer	**Points**
Correct answer in Ukrainian and Latin	2
Correct answer in Ukrainian only or Latin only	1
Incorrect answer or no answer	0
The maximum score for Stage III is 20 points.	

Таблиця оцінювання кінцевого контролю (іспит)

Test control	**Writen control**				**Practical skills**	
40 Tests	**Question 1**	**Question 2**	**Question 3**	**Question 4**		**Total number of points**
«5» – 36–40 correct anwers (90–100 %) **For example,**	15 points 15 points	15 points	15 points	15 points	20 points 20 points	

max 40 points		15 points	15 points	15 points		**Total 120 points**
«4» – 32–35 correct anwers (80–89 %)	points	13 points	13 points	13 points	Scoring is performed by summing the points for 10 anatomical structures (0–20 points).	
«3» – 28–31 correct anwers (70–79 %) **For example, min 28** points	**10,5** points	**10,5** points	**10,5** points	**10,5** points	For each anatomical structure: 2, 1, or 0 points.	**Total70** points
«2» Less 28 corect anwers (less 70 %) 0 балів	0 points	0 points	0 points	0 points	0 points	

OVERALL ASSESSMENT FOR THE "HUMAN ANATOMY" COURSE

 The student's performance in the course is assessed using a rating system based on a multi-point scale, calculated as the sum of points awarded for ongoing academic work and the final assessment of knowledge.

 The course grade is determined according to the ECTS scale and the national grading scale adopted in Ukraine.

Allocation of points for the course

Number of classes	**Continuous Assessment and Independent Student Work**				**IW**	**Total points for ongoing coursework**	**Total points for exam**	**Total points for subject**
	«5»	**«4»**	**«3»**	**«2»**				
67	**1,1**	**0,9**	**0,8**	**0**	**6**	**0 – 80**	**0 – 120**	**0 – 200**

A student's performance in a course is assessed using a rating system based on a multi-point scale; the grade is calculated as the sum of points from ongoing and final knowledge assessments and is defined according to the ECTS system and the grading scale adopted in Ukraine.

Correspondence between grading scales for the mastery of course material

Grade on the national scale	Grade in points	**Score on the scale ECTS**	**Explanation**
"Excellent"	170 – 200	A	Excellent (excellent performance with only a few minor errors)
"Good"	155 – 169	B	Very Good (above-average performance with a few errors)
	140 – 154	C	Good (generally correct performance with some significant errors)
"Satisfactory"	125 – 139	D	Satisfactory (decent, but with a significant number of shortcomings)

	111 – 124	E	Sufficient (performance meets minimum criteria)
"Unsatisfactory"	60 – 110	FX	Unsatisfactory (with the option to retake the assessment)
	1-59	F	Unsatisfactory (with a requirement to retake the course)

ACADEMIC INTEGRITY DURING EXAMINATIONS

 While taking an examination, higher education students are required to adhere to the principles of academic integrity in accordance with Article 42 of the Law of Ukraine "On Education" and the Regulation on Academic Integrity at O.O. Bogomolets National Medical University.

 Students are prohibited from using any unauthorized aids, including:

- mobile phones;
- smartwatches;
- headphones;
- communication devices;
- lecture notes;
- textbooks;
- printed or handwritten materials;
- devices for reading, processing, storing, or transmitting information;
- external internet resources during remote examinations;
- assistance from third parties.

If the use of prohibited aids or a violation of academic integrity principles is detected, the student shall be removed from the examination, and the examination result shall be graded as "unsatisfactory."

PROCEDURES FOR THE REMOTE EXAM

 During the remote exam, the student is required to:

 join the Zoom meeting at the scheduled time;

 undergo identity verification;

 turn on the camera and microphone upon the examiner's request;

- be alone in the room;
- allow the examiner to view the workspace upon request;
- refrain from using external sources of information;
- refrain from leaving the workspace without the examiner's permission;
- follow the instructions of the examination commission.

In the event of a technical failure, the student must immediately notify the examiner or the designated department representative. Subsequent actions will be determined by the examination commission, taking into account the circumstances and the technical feasibility of continuing the exam.

APPEAL PROCEDURE

- If a student disagrees with the result of a semester exam, they have the right to submit an appeal in accordance with Clause 8.9 of the Regulation "On the Organization of the Educational Process at O.O. Bogomolets NMU."
- The appeal must be submitted to the dean's office of the relevant faculty or institute after the exam results are announced, but no later than the following day.
- The appeal is reviewed in accordance with the procedure established by the University.

INFORMATION RESOURCES

- **Likar_NMU learning platform: https://likar.nmu.kyiv.ua**
- **Department of Descriptive and Clinical Anatomy website: https://nmuofficial.com/zagalni-vidomosti/kafedri/kafedra-anatomyy-cheloveka/**
- **Official website of O.O. Bogomolets NMU: https://nmuofficial.com**

10. Course Policy:

The course policy entails the consistent and purposeful implementation of the educational process based on transparency, accessibility, scientific validity, methodological appropriateness, and the responsibility of all participants in the educational process.

The "Human Anatomy" discipline is a mandatory course with a workload of 13 credits; it is a key subject within the natural science training cycle for Bachelor's degrees and serves as a component of the external assessment—specifically the first stage of the USQE (Unified State Qualification Exam)—for the "Medicine" specialty (Code 222).

INFORMATION RESOURCES

- Likar_NMU learning platform: https://likar.nmu.kyiv.ua
- Department of Descriptive and Clinical Anatomy website: https://nmuofficial.com/zagalni-vidomosti/kafedri/kafedra-anatomyy-cheloveka/
- Official website of O.O. Bogomolets NMU: https://nmuofficial.com

11. Recommended literature:

1. Human Anatomy: Textbook, Vol. 1 / A.S. Holovatskyi, V.H. Cherkasov, M.R. Sapin, A.I. Parakhin, O.I. Kovalchuk – 10th revised edition – Vinnytsia: Nova Knyha, 2025. – 1200 p.: ill.
2. Human Anatomy: Textbook, Vol. 2 / A.S. Holovatskyi, V.H. Cherkasov, M.R. Sapin, A.I. Parakhin, O.I. Kovalchuk – 10th revised edition – Vinnytsia: Nova Knyha, 2025. – 1200 p.: ill.
3. Human Anatomy: Textbook, Vol. 3 / A.S. Holovatskyi, V.H. Cherkasov, M.R. Sapin, A.I. Parakhin, O.I. Kovalchuk – 10th revised edition – Vinnytsia: Nova Knyha, 2025. – 1200 p.: ill.
4. Kovalchuk O.I. International Anatomical Terminology (Latin, Ukrainian, and English equivalents). Knyha-Plus, 2023. – 129 p. (study guide) + electronic resource.
5. Colorful Anatomy (assessment of independent preparation for practical classes) [for students of higher medical (pharmaceutical) educational institutions of the IV accreditation level] / 199 pp. 2025. Educational-methodological guide / Edited by I.V. Dzevulska and O.I. Kovalchuk.
6. "Krok-1" Test Tasks: Human Anatomy / 8th revised edition / Edited by V.H. Cherkasov, I.V. Dzevulska, and O.I. Kovalchuk. Study guide. – 2023. – 100 pp.

Supplementary:

1. Gray's Anatomy for Students: Textbook. Richard L. Drake, A. Wayne Vogl, Adam W.M. Mitchell. Translation of the 5th edition. Kyiv: VSV "Medytsyna". 2025, 1111 pp.
2. Neuroanatomy: Trans. of 7th ed. / Alan Crossman; scientific editors of the edition: Oleksandr Kovalchuk, Iryna Dzevulska. – Kyiv: VSV "Medytsyna", 2025. – VIII, 182 pp. – (Text and color illustrations).
3. Diubenko K.A. Human Anatomy. In 2 volumes. Volume 1 / K.A. Diubenko, A.K. Kolomiitsev, Yu.B. Chaikovskyi. – Kyiv: AT Knyha, 2022. – 690 pp.

Electronic resources:

https://likar.nmu.kyiv.ua./

www.anatom.ua

https://nmuofficial.com

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(Protocol No. 1 dated August 26, 2026) and at the meeting of the Central Methodological Commission for Natural Sciences (Protocol No. 1 dated August 26, 2026).