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INTERNATIONAL EUROPEAN UNIVERSITY

SYLLABUS

INTERNATIONAL EUROPEAN UNIVERSITY

SCHOOL OF MEDICINE

HUMAN ANATOMY

2023

SYLLABUS

Course Name	HUMAN ANATOMY
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Lecturer's profile	https://medicine.ieu.edu.ua/pro-yemsh/kafedry/ kafedra-fundamentalnykh-dystsyplin
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Form of final control	test	def. test	exam
	☒	☐	☒

SYLLABUS

1 Brief discipline annotation

The study of the Human anatomy discipline for medical students is a classical model of the university course adapted to the needs of medicine, providing students with knowledge in the world of natural scientific 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 practical activities of doctors.

2 Background for studying discipline

Interdisciplinary links: topographical anatomy and operative surgery, histology, normal physiology, surgery, therapy, radiology, neurology, dentistry, etc.

3 Goal and objectives of the discipline

The goal of the Human anatomy academic discipline follows from the objectives of the educational and professional program of training medical students and is determined by the content of systemic knowledge and skills that should be mastered by a doctor. The knowledge obtained by students in the Human anatomy academic discipline is basic for the block of disciplines providing natural science (NS block) and professional and practical (PP block) training.

Key objectives of the Human anatomy academic discipline:

- To analyze information about the structure of the human body, its components, organs and tissues.
- To show possession of moral and ethical principles of attitude to a living person and his/her body as an object of anatomical and clinical research.
- To interpret the regularities of prenatal and early postnatal development of human organs, options of organ variability, malformations.
- To interpret sex, age and individual particularities of the structure of the human body.
- To explain the regularities of development and particularities of the structure of human organs and systems at the macro- and microscopic level.
- To determine the interdependence and unity of structures and functions of human organs, their variability under the influence of environmental factors; determine topographic and anatomical relationships of human organs and systems.
- To determine the influence of social conditions and labor on the development and structure of the human body.

4 Learning outcomes

PLO 1.	To have comprehensive knowledge of the structure of professional activities. To be able to carry out professional activities requiring updating and integration of knowledge. To be responsible for professional development, ability to further professional training with a high level of autonomy.
PLO 2.	To understand and know fundamental and clinical biomedical sciences at the level sufficient to solve professional tasks in the healthcare sector.
PLO 3	Specialized conceptual knowledge that includes healthcare scientific achievements and is the foundation for research; critical comprehension of medical issues and related interdisciplinary problems.

4 Learning outcomes

PLO 4	To distinguish and identify principal clinical symptoms and syndromes (according to list 1); to define a provisional clinical diagnosis (according to list 2) using standard techniques, preliminary data on patient's medical history, data on patient examination, knowledge of human beings, their organs and systems.
PLO 5	To collect complaints, life and medical history, assess the psychomotor and physical development of patients, the condition of organs and body systems based on the results of laboratory and instrumental studies to assess information about the diagnosis (according to list 4), taking into account patient's age.
PLO 21.	To find necessary information in professional literature, databases and other sources; to analyze, assess and apply this information.

5 ECTS credits

14 ECTS credits / 420 academic hours, including 64 hours of lectures, 160 hours of practical classes, 196 hours of independent work.

6 Course Content

Content section 1. Introduction to anatomy. Anatomy of bones.

Topics	Amount of hours			
	total	including		
		l	p	i.w
Topic 5. The skull as a whole. Base of the skull. Lateral norm of the skull: fossae.	7	-	3	4
Topic 6. Bones of the upper limb.	7	-	3	4
Topic 7. Bones of the lower limb.	7	-	3	4
Content section 2. Joints of bones.				
Topic 8. Introduction to arthrology. General arthrology. Classification of joints between bones. Structure and function of the joints. Structure of the spine as a whole.	5	2	3	-
Topic 9. Anatomy of continuous and discontinuous joints between bones. Development of joints between bones in ontogenesis. Joints between bones of the trunk and bones of the head.	9	2	3	4
Topic 10. Joints of the upper limb bones.	7	-	3	4
Topic 11. Joints of the lower limb bones.	7	-	3	4
Content section 3. Muscle anatomy				
Topic 12. General myology. Muscle as an organ. The structure and function of muscles. Classification. Muscle development. Elements of biomechanics.	8	1	3	4

Topic 13. Muscle as an organ. Classification of muscles. Development of skeletal muscles. Muscles and fascia of the back. Muscles and fascia of the chest. Diaphragm.	8	1	3	4
Topic 14. Abdominal muscles and fasciae. Vagina of the rectus abdominis muscle. The inguinal canal. White line of the abdomen.	7	-	3	4
Topic 15. Anatomy of muscles and fascia of the head. Muscles and fascia of the neck. Topography of the neck.	7	-	3	4
Topic 16. Muscles of the upper limb. Fascia and topography of the upper limb.	8	1	3	4
Topic 17. Muscles of the lower limb. Topography and fascia of the lower limb.	8	1	3	4
Topic 18. Introduction to splanchnology. Classification of internal organs. Anatomy of the oral cavity. The palate. Anatomy of the tongue. Anatomy of salivary glands. Anatomy of teeth. Maxillary system.	9	2	3	4
Topic 19. Anatomy of the pharynx, esophagus. Anatomy of the stomach. Sections of the anterior abdominal wall.	7	-	3	4
Topic 20. Anatomy of the small and large intestines.	7	-	3	4
Topic 21. Structure and functions of digestive system glands. Liver, gall bladder. Pancreas. Anatomy of the peritoneum.	9	2	3	4
Content section 5. Respiratory system				
Topic 22. General anatomy of the respiratory system. Embryogenesis of respiratory system organs.	8	1	3	4
Topic 23. Anatomy of trachea, main bronchi, lungs. Pleura. Mediastinum.	8	1	3	4
Content section 6. Genitourinary, endocrine and immune systems				
Topic 24. Anatomy of urinary organs (kidneys, ureters, bladder, urethra).	9	2	3	4
Topic 25. Anatomy of male genital organs. The perineum. Anatomy of female genital organs. The mammary gland.	11	4	3	4
Topic 26. Anatomy of the immune system organs. Anatomy of endocrine system organs.	9	2	3	4
Content section 7. Anatomy of the CNS				
Topic 27. Introduction to the CNS. General provisions of the structure of reflex arcs. Gray and white matter of the CNS. Development of the CNS in ontogenesis and phylogenesis. External and internal structure of the spinal cord. Embryogenesis of the brain. Anatomy of the medulla oblongata and the bridge.	8	1	3	4
Topic 28. Anatomy of the cerebellum. IV ventricle. Rhomboid fossa.	7	-	3	4
Topic 29. Anatomy of the midbrain. Anatomy of the intermediate brain. III ventricle.	7	-	3	4

6 Course Content

Topic 30. Cortex, its components, functions. Olfactory brain. Relief of the cape. Localization of functions in the cortex.	8	1	3	4
Topic 31. Basal nuclei. White matter of the hemispheres. Lateral ventricles.	7	-	3	4
Topic 32. Shells of the spinal cord and brain. Formation and pathways of circulation of cerebrospinal fluid.	8	1	3	4
Topic 33. Ascending leading pathways. Descending leading pathways	8	1	3	4
Content section 8. Sense organs.				
Topic 34. Anatomy of the sense organs. Anatomy of the eye. Leading pathways of the visual analyzer.	8	2	3	3
Topic 35. Anatomy of the ear. Leading pathways of hearing and balance.	6	1	3	2
Topic 36. The organ of taste. The organ of olfaction. Leading pathways of taste and olfaction. Skin, its derivatives. Leading pathways of the skin analyzer.	6	1	3	2
Topic 37. Practical skills of material on the anatomy of the sensory organs.	5	-	3	2
Content section 9. Cranial nerves. Spinal nerves.				
Topic 38. Classification of cranial nerves. I, II, III, IV, VI, VIII pairs of cranial nerves.	8	2	3	3
Topic 39. V pair of cranial nerves. VII pair of cranial nerves. Autonomic nodes of the head.	6	-	3	3
Topic 40. IX, X, XI, XII pairs of cranial nerves.	6	-	3	3
Topic 41. Spinal nerves. General outline of the formation of somatic nerve plexuses. Cervical plexus. Thoracic nerves.	8	2	3	3
Topic 42. Practical skills and generalization of material on the anatomy of head and neck nerves.	6	-	3	3
Content section 10. Vessels of the head and neck.				
Topic 43. The doctrine of vessels - angiology. Aorta. Branches of the aortic arch. Common and external carotid arteries.	8	2	3	3
Topic 44. Anatomy of the arterial system.	6	2	-	4
Topic 45. Internal carotid and subclavian arteries.	7	-	3	4
Topic 46. Venous vessels of the head and neck. Lymph nodes and vessels of the head and neck.	8	2	3	3
Topic 47. Practical skills and generalization of material on the anatomy of vessels and nerves of the head and neck. Vascularization and innervation of head and neck organs.	6	-	3	3

6 Course Content

Topic 44. Anatomy of the arterial system.	6	2	-	4
Topic 45. Internal carotid and subclavian arteries.	7	-	3	4
Topic 46. Venous vessels of the head and neck. Lymph nodes and vessels of the head and neck.	8	2	3	3
Topic 47. Practical skills and generalization of material on the anatomy of vessels and nerves of the head and neck. Vascularization and innervation of head and neck organs.	6	-	3	3

Content section 11. Anatomy of the heart. Vessels and nerves of the trunk.

Topic 48. Anatomy of the heart (I): topography of the heart, anatomy of the heart chamber. Large and small circles of blood circulation. Anatomy of the heart (II): the structure of the heart wall, blood supply of the heart, pericardium. Projection of the heart on the anterior wall of the thoracic cavity.	8	4	3	1
Topic 49. Aorta. Thoracic aorta. Abdominal aorta. Pelvic artery. Arteries and veins of the large circle of circulation.	8	2	3	3
Topic 50. Veins of the head and neck. Lymphatic vessels of the head and neck.	8	2	3	3
Topic 51. Veins of the trunk: odd and semi-even veins, inferior vena cava, pelvic veins. The portal hepatic vein. Porto-caval, cavo-caval and porto-cavo-caval anastomoses. Lymphatic vessels and nodes of the thoracic, abdominal cavity and pelvis.	6	-	3	3
Topic 52. Autonomic part of the peripheral nervous system. The sympathetic part of the ANS. Parasympathetic part of the ANS.	8	2	3	3
Topic 53. Vascularization and innervation of organs of thoracic, abdominal and pelvic cavities. Practical skills and generalization of material on the anatomy of the heart, vessels and nerves of the trunk. Blood circulation of the embryo and fetus.	8	2	3	3
Topic 54. Lymphatic system. Philo- and ontogenesis of lymphatic vessels and nodes.	5	2	-	3

Content section 12. Vessels and nerves of the upper and lower extremities.

Topic 55. Anatomy of the somatic part of the peripheral nervous system	6	2	3	1
Topic 56. Blood supply and innervation of the upper limb.	8	2	3	3
Topic 57. Vessels of the lower limb. Somatic nerve plexuses: lumbar, sacral.	8	2	3	3
Total hours: 420 / 14 ECTS credits	420	64	162	194

7 List of obligayory tasks

1. History of pathological anatomy and pathomorphology.
2. Elements of ultrastructural pathology of the cell.
3. Death of an organism from biological, social and medical perspectives. Definition of intrauterine death. Thanatogenesis.
4. Selective death of specialized cells in a living organism.
5. Genetic diseases caused by enzyme defects: lysosomal diseases, accumulation diseases.
6. Clinical and morphological features of various forms of amyloidosis
7. Mechanisms of accumulation of exogenous pigments.
8. Disorders of ion-osmotic and water balance. Hyper- and hypokalemia: role in thanatogenesis.
9. The role of the vascular wall, blood coagulation system in physiological hemostasis and thrombosis. Hypercoagulable states.
10. Pathogenesis and main stages of development of different types of shock, typical morphological changes in organs during shock. ICE syndrome: pathogenesis, stages, their morphological signs, significance.
11. Morphological manifestations of immune reactions in peripheral lymphoid organs, thymus. The concept of innate and acquired immunity.
12. Stages of development and resolution of acute inflammation. Differences between acute and chronic inflammation.
13. Molecular basis of cell and tissue proliferation. Stem cells and their role at different stages of embryo and ontogenesis. Pathomorphology of organ failure.
14. Molecular basis and main stages of carcinogenesis.
15. Morphology of tumors of exo- and endocrine glands and epithelial coverings.
16. Nomenclature and morphological features of tumors of mesenchymal origin
17. Nomenclature and morphological features of tumors of nervous and melanin-forming tissues.
18. The concept of "disease", manifestations and complications of diseases. Principles of disease classification.
19. Diseases of the cardiovascular system.
20. Chronic restrictive lung diseases (fibrosing, granulomatous, allergic and smoking-related).
21. Diseases of the oropharynx, salivary glands, esophagus.
22. Biliary stone disease, acute and chronic cholecystitis, tumors. Acute and chronic pancreatitis, tumors.
23. Secondary glomerulopathies. Tubulointerstitial nephritis. Hydronephrosis.
24. Cystic kidney disease:
25. Diseases of the mammary gland. Sexually transmitted infections (syphilis, gonorrhea, papillomavirus infection, chlamydia, ureaplasmosis, trichomoniasis.
26. Genetic diseases: Mendelian diseases, cytogenetic diseases, diseases with multifactorial and non-classical inheritance.
27. Diseases of the endocrine system: Hypothalamic-pituitary disorders.
28. Diseases of muscles, bones, joints; congenital and toxic myopathies; lesions of the neuromuscular junction - myasthenia gravis.
29. Skin diseases: terminology that reflects the pathology of the skin.
30. Infectious and parasitic diseases. Characterization of the infectious process.
31. Helminthiasis (trichinosis, echinococcosis, cysticercosis, opisthorchiasis, schistosomiasis)

8 List of selective tasks

1. Create situational test tasks
2. Creating multimedia presentations on the topics of practical classes
3. Creating biological crosswords on the topics of practical classes
4. Making posters with contours of physiological regulation of functions
5. Participation in the work of the student scientific club
6. Participation in student scientific and practical conferences
7. Organization and visiting of thematic museums
8. Publication of abstracts of scientific conference reports in co-authorship with a teacher

9 Discipline features

Period of teaching	Semester	International disciplinary integration	Year of study	Courses: general training/ professional training/elective
1 semester	1,2 semester	available	1	General training

10 Assessment system and requirements. General system of discipline assessment

The current performance of students is assessed on a 4-point scale (2; 3; 4; 5) at each practical, taking into account the approved evaluation criteria for the relevant discipline. The student must receive a grade for each topic for further conversion of grades into points on a multi-point (200-point) scale.
Criteria for assessing current academic performance:
Excellent ("5") - a student has correctly answered 90-100% of the A-format tests (from the "Krok-2). Solves situational problems of increased complexity, is able to generalize the material.
Good ("4") - the student correctly answered 70-89% of the tests of format A. Possesses the necessary practical skills and techniques for their implementation in excess of the required minimum.
Satisfactory ("3") - the student correctly answered 50-69% of the tests of format A. Has only the mandatory minimum of research methods.
Unsatisfactory ("2") - the student correctly answered 50% of the tests of format A. When answering and demonstrating practical skills, he/she makes significant, gross mistakes.
Evaluation of students' independent work in preparation for classroom practical classes is carried out during the current control of the topic at the relevant classroom.
The semester credit is evaluated on a two-point scale (passed/not passed) and a 200-point scale by determining the arithmetic mean of current grades for each practical lesson on a 4-point scale and its subsequent conversion to 200-point scale. The minimum number of points that a student must score is 120.
In the fifth semester, when studying "General Pathomorphology", the form of final control is a test. In the sixth semester, when studying "Special Pathomorphology", the form of final control is a test in the relevant section of the discipline ("Special Pathomorphology") and an exam in the discipline "Pathomorphology".
A semester test is a form of final control, which consists in assessing the student's mastery of the educational material solely on the basis of the results of performing all types of tasks provided by the working curriculum. The semester test in the discipline "Pathomorphology" is conducted after the completion of the study of section 1
"General pathomorphology" and section 2 "Special pathomorphology". The test in the discipline (the corresponding content module) is conducted after the end of the study, before the start of the examination session.

10 Assessment system and requirements. General system of discipline assessment

The exam is a form of final control of the student's mastery of theoretical and practical material in the discipline "Pathomorphology".
QR Code: https://ieu.edu.ua/docs/rate-of-study.pdf

11 Assessment system and requirements. General system of discipline assessment

Students who have completed all types of work, tasks provided for in the curriculum for the semester in accordance with the discipline, attended all classes provided for in the curriculum, written and submitted a medical history and have an average score for current academic activities of at least "3" (72 points on a 120-point scale) are allowed to take part in the semester final control
https://ieu.edu.ua/docs/rate-of-study.pdf

12 Admission to final control

The policy of the academic discipline is determined by the requirements that scientific and practical workers make to students in the study of clinical discipline. The condition for a successful educational process is personal compliance of each student of a higher education institution with the rules of behavior adopted both at the university and in society. A future doctor must have a high level of behavioral culture, behave with dignity, tact, and self-control.
The student must be on time for classes and wear academic medical uniform (white coat or surgical suit).
The student must adhere to the schedule of the educational process, come to class prepared on the topic of the class. During the class, the student should not leave the classroom without the permission of the teacher; use a cell phone and other means of communication and information without the permission of the teacher, engage in outside activities, distract other students. When writing different types of papers, students must adhere to the rules of academic integrity.
The teacher must adhere to the curriculum, objectively assess the knowledge and skills of students. During the educational process, the teacher must be aware of anti-corruption measures and not engage in corrupt activities.

13 Discipline policy

A student who, for valid reasons, confirmed by documentary evidence, was not subject to current control has the right to undergo current control within two weeks after returning to study.
A student who was absent from classes without valid reasons, did not participate in current control activities, did not eliminate academic debt, is not allowed to take the final semester control of knowledge in this discipline, and on the day of the exam, the academic staff member gives a grade of "not admitted" in the examination record.
Retaking the differentiated test in the discipline is assigned subject to the completion of all types of educational, independent (individual) work provided for by the working curriculum of the discipline and is carried out in accordance with the schedule of liquidation of academic debt approved by the directorate.
https://ieu.edu.ua/docs/050.pdf

14 Policy of absence and late task performance

Participants in the educational process are guided by the principles of academic integrity
https://ieu.edu.ua/docs/011.pdf

15 Recommended sources of information

Primary literature:

1.Human anatomy. Edition 2. Cherkasov V.H., Kravchuk S.Y., et al. - Vinnytsia: Nova Knyha, 2018. - 640 p.

2.Human anatomy. Volume 2. Edition 7. Holovatskyi A.S. et al. - Vinnytsia: Nova Knyha. - 2019. - 456 p.

3. Human anatomy. Edition 3. Cherkasov V.H., Kravchuk S.Y., et al. - Vinnytsia: Nova Knyha. - 2020. - 584 p.

4.Human Anatomy in three volumes / A.S. Holovatskyi, V.H. Cherkasova, M.R. Sapin, Y.I. Fedoniuk. - Vinnytsia: Nova Knyha, 2006, 2007, 2008.

5. Human Anatomy. In three volumes / Edited by V.H. Koveshnikov. - Luhansk: Shyko Publishing house, Virtual Reality LLC, 2005. - 328 p.

6.Human anatomy. In two parts. / Edited by K. A. Dubenko. - K: Atlant-UMS CJSC, 2004. - 689 p.

7.Dubenko K.A. Anatomical terminology / K.A. Dubenko. - K.: Polygraph. Book, 2001. - 392 p.

8.Dubenko K.A. International anatomical nomenclature / K.A. Dubenko. - K.: Perun, 1997. - 143 p.

9.Mateshuk-Vatseba L.R. Normal anatomy / L.R. Mateshuk-Vatseba. - Lviv: Call of Conscience, 1997. - 269 p.

10.International anatomical terminology (Latin, Ukrainian, Russian and English equivalents) / V. equivalents) / V.H. Cherkasov, I.I. Bobryk, Y.Y. Huminskyi, O.I. Kovalchuk. - Vinnytsia: Nova Knyha, 2010. - 392 p.

11.International anatomical nomenclature / Edited by I.I. Bobryk, V.H. Koveshnikov. - Kyiv: Health, 2001. - 328 p.

12.Netliukh M.A. Ukrainian-Latin anatomical dictionary / M.A. Netliukh. - Lviv, 2000. - 215 p.

13.Svyrydov O.I. Human Anatomy / O.I. Svyrydov. - Kyiv: Health, 2000. - 400 p.

14.Synelnykov R.D. Atlas of human anatomy. In 4 volumes / R.D. Synelnykov. – M,: Medicine, 2004.

15.Friedrich Paulsen. Sobotta. Atlas der Anatomie des Menschen / Friedrich Paulsen, Jens Waschke. – München: Urban & Fischer, 2011. – 416 p.

Netter F. H. Atlas of Human Anatomy. Ciba-geigy limited / F. H. Netter. – Switzerland, 1991. – 514 p.

17.Rauber-Kopsch. Lehrbuch und atlas der anatomie des menshen / Rauber-Kopsch. – Bend I. Leipzig, 1940. – 500 p.

Additional literature:

1. Vilkhovoi V.F. X-ray anatomical atlas of vessels / V.F. Vilkhovoi: Health, 1975. - 141 p.
2. Tonkov V.N. Textbook of normal human anatomy / V.N. Tonkov, ed. by B.A. Dolgo-Saburov. - L., Medgiz, 1962. - 763 p.
3. Fik V.B. Introduction to radiological anatomy. Radiological anatomy of bones and their joints / V.B. Fik // Methodical development for teachers and students. - Lviv, 2002. - 26 p.
4. Fiskova L.B. Methodical recommendations for independent work of students in the study of the motor apparatus. V.1. Osteology. Edition 2, revised, supplemented / L.B. Fiskova, L.R. Mateshuk-Vatseba. - LSMU, Lviv, 1998. - 64 p.
5. Prives M.G. Human anatomy / M.G. Prives, N.K. Lysenkov, V.I. Bushkevich. - Hippocrates, St. Petersburg: MAPO Publishing house of St. Petersburg, 2004. 720 p.

Information resources

1. Testing Board – Database of Krok-1 licensed test assignments: http://testcentr.org.ua/
2. OMIM (Online Mendelian Inheritance in Man) – An Online Catalog of Human Genes and Genetic Disorders http://omim.org/

16 Tips on successful study during the course

If you want to be successful in this discipline, you need to:

1. Be active, persistent, inquisitive, consistent
2. Be neat and polite
3. Systematically prepare for practical classes
4. Perform tasks for independent work and defend them in class.
5. To be present in the classroom in a medical gown
6. To solve tests and tasks independently, to work actively in class.
7. Prepare presentations and crossword puzzles in the discipline. Participate in student scientific conferences and engage in research work in the department's scientific circles.

I wish you perseverance, dedication and motivation to learn. And then success will come to you! See you in class!

Don't forget your medical gowns!