ANATOMY OF DOMESTIC ANIMALS

SYLLABUS OF THE EDUCATIONAL COMPONENT

specialty	211 – Veterinary medicine	mandatory discipline	mandatory
educational program	veterinary medicine	faculty	veterinary medicine
educational level	master	chair	normal and pathological morphology

TEACHERS

Fesenko Iryna Anatolyivna

Higher education - veterinary medicine specialty
Scientific degree - candidate of veterinary sciences, specialty 16.00.02 - pathology, oncology and morphology of animals
Academic title
Work experience - 14 years

Indicators of professional activity on the subject of the course:

- author of 7 methodological developments;
- experience of scientific work of 14 years;
- participant of scientific and methodical conferences;

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GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT (DISCIPLINE)

Goal	the formation of a theoretical and practical understanding of the regularities of the structure of the organism, as well as the study of the form and structure of the organs and organ systems of the entire body of animals in close relationship with the conditions of existence, with the functions of the organs that they perform, under the influence of external factors and the internal environment.
Format	lectures, laboratory classes, independent work, individual research task for students with subsequent supervision by the teacher, writing content module tests, written control work or oral survey
Detailing of learning results and forms of their control	• the ability to imagine the general regularities and peculiarities of the structure of organs, systems and organs of animals, their species characteristics in domestic animals (GC1, GC2, SC1, PLO1) / individual laboratory classes, writing tests,

	assessment. • the ability to characterize not only the peculiarities of the structure of a specific organ, but also its morpho-functional relationship with various systems of the animal body (GC1, GC2, SC1, PLO 1) / individual laboratory classes, writing tests, assessment. • ● the ability to understand the general regularities and peculiarities of the macroscopic structure of the organism of various classes and species of animals under the action of biotic and abiotic factors (GC1, GC2, GC3, SC1, PLO 1) / individual laboratory classes, writing tests, assessment. • ● be able to analyze information about the functions, structure, species characteristics of organs, systems and apparatuses of the body of domestic animals, analyze tasks and achievements in solving practical issues of animal husbandry GC1, GC2, GC3, SC1, PLO 1 / individual laboratory classes, writing tests, assessment. • ability to abstract thinking, analysis, synthesis, search, processing of information from various sources GC1, GC2, GC3, SC1, PLO 1 / individual laboratory classes, writing tests, credit .
Scope and forms of control	13 ECTS credits (390 hours): 46 hours of lectures, 158 hours of laboratory-practical classes; 156 hours of self-study, current control (4 tests); 30 hours of educational practice "Topographic anatomy". Final control – 1st and 2nd semesters undifferentiated assessment, 3rd semester exam. Differentiated credit from practice.
Requirements of the teacher	вчасне виконання завдань, активність на заняттях, робота з індивідуальними творчими завданнями, написання тестів змістових модулів completing tasks on time, being active in classes, working with individual creative tasks, writing content module tests
Enrollment conditions	"free enrollment"

COMPLEMENTS THE STANDARD OF EDUCATION AND THE EDUCATIONAL PROGRAM

Competences	GC1. Ability to think abstractly, analyze and synthesize, search, process information from various sources. GC2. Ability to apply knowledge in practical situations GC3. Knowledge and understanding of the subject field and profession. SC1. The ability to establish the features of the structure and functioning of cells, tissues, organs, their systems and body apparatuses of animals of various classes and species - mammals, birds, insects (bees), fish and other vertebrates.	Program Learning Outcomes	PLO1. Know and correctly use the terminology of veterinary medicine.

STRUCTURE OF THE EDUCATIONAL COMPONENT

Part 1. Somatic group of systems

Lecture 1 (L1)	Introduction to anatomy. Basic morphological concepts	Laboratory lesson 1	General anatomy. The main regularities of the structure of the skeleton. Thoracic vertebrae.	Independent work	1. The main stages of development of anatomy. Domestic anatomical schools and trends. 2. Species-specific features of the structure of dog vertebrae 3. Species-specific features of ribs 4. Species-specific features of the sternum
		Ll 2	Visceral bones. Chest		
		Ll 3	Cervical spine.		

L2	General osteology. Characteristics of the Skeleton. Axial skeleton.	Ll 4	Lumbar, sacral and tail sections of the spine.		5. Species-specific features of the cervical, lumbar, sacral, and caudal vertebrae 6. Species-specific features of the lower jaw and hyoid bone 7. Pig skull 8. Dog skull 9. Age-related features of the skulls of domestic animals 10. Species-specific features of the shoulder blades of domestic animals 11. Species-specific features of the pelvic bones of domestic animals 12. Species differences in the styloid and zygomatic bones 13. Features of the location of the bones of the hand and foot in different species of animals 14. Species characteristics of the carpal ligament 15. Differences in the structure of the knee joint in animals 16. Species characteristics of the joints of the hand 17. Species characteristics of the joints of the foot 18. Age characteristics of bone connections 19. Layered structure of the abdominal wall 20. Mimetic muscles of the head 21. Jugular groove 22. Species differences in the muscles of the joints of the hand 23. Species differences in the muscles of the foot joints 24. Important anatomical structures of the pelvic limb 25. Finger organ of ruminants, pigs, and carnivorous mammals
		Ll 5	Skull, dividing it into sections. External structure of the skull.		
		Ll 6	The internal structure of the nasopharyngeal part of the skull.		
L3	Morpho-functional characteristics of limbs. The skeleton of the limbs.	Ll 7	Division of limbs and their skeleton into departments and links. The structure of the bones of the limb girdle.		
		Ll 8	The structure of the bones of the stylopodium and zeigopodium. Bones of the auto event.		
		Ll 9	Connection of the bones of the axial skeleton.		
L4	Arthrology	Ll 10	Connection of the bones of the thoracic limb.		
		Ll 11	Connection of the bones of the pelvic limb.		
		Ll 12	Fascia of the trunk. Muscles of the shoulder girdle.		
L5	General myology.	Ll 13	Chest muscles. Abdominal muscles.		
		Ll 14	Muscles of the spine. Ventral muscles of the neck. Head muscles.		
		Ll 15	Muscles of the hip and knee joints		
L6	Special myology	Ll 16	Muscles of the metatarsal joint and joints of the toes.		
		Ll 17	Muscles of the shoulder and elbow joints.		
L7	Dermatology. Glandular derivatives of the skin. Corneal derivatives of the skin	Ll 18	Muscles of the wrist joint and finger joints of the hand.		

		Ll 19	Skin. Glandular skin derivatives.		26. INDZ from the somatic group of systems. Body parts, limb segments and joints, skin and its derivatives
		Ll 20	Mammary glands.		
		Ll 21	Skin. derivatives of the skin.		
		Ll 22	INDZ from the somatic group of systems. Body areas, limb links and joints, skin and its derivatives		
Part 2. Visceral group of systems					
L8	General splanchnology. Body cavities. Serous formations in body cavities.	Ll 23	Autopsy of the corpse. Serous formations.	Independent work	1. Species characteristics of the lips, cheeks, and tongue 2. Species characteristics of the pharynx and esophagus 3. Species characteristics of the nose, nasal cavity, and paranasal sinuses 4. Species characteristics of the larynx, trachea, and lungs 5. Fundamentals of respiratory biomotorics 6. Species characteristics of the kidneys 7. Species characteristics of the testicles, epididymis, and accessory sex glands in males. Descent of the testicles 8. Species characteristics of the vagina and vestibule of the vagina 9. Classification of placentas
		Ll 24	Digestive apparatus. Oral organs		
		Ll 25	Pharynx: its relationship with adjacent organs.		
L9	Characteristics of the digestion apparatus.	Ll 26	Esophagus. The stomach is single-chambered		
		Ll 27	Ruminant stomach		
		Ll 28	Organs of the middle intestine		
L10	Breathing apparatus	Ll 29	Hindgut organs		
		Ll 30	Nis, nosova porozhnina. Nasopharynx, larynx.		
		Ll 31	Trachea. Main bronchi. Lungs.		
L11	Female urogenital system.	Ll 32	Urinary apparatus		
		Ll 33	Female genital apparatus		
		Ll 34	Male genital apparatus		
L12	Genital apparatus of the male	Ll 35	Male genital apparatus		

		Ll 36	INDZ. Characteristics of the sections and areas of the abdominal cavity. Topography of internal organs.		
Part 3. Integrated group of systems					
L13	General angiology. Circles of blood circulation. Heart.	Ll 37	Heart, core. Circulatory circles.	Independent work	1. Classification of arteries, types of anastomoses 2. Features of vein structure. Hemodynamic factors 3. Species-specific features of aortic arch branching 4. Features of the thoracic aorta 5. Blood supply to the hand in animals 6. Features of the branching of the arteries of the head 7. Blood supply to the foot in animals 8. Veins of the mammary gland 9. Classification of lymphatic vessels 10. Species features of the thymus and spleen 11. Species features of the endocrine glands 12. INDZ. Characteristics of the divisions and sections of the abdominal cavity. Topography of internal organs. Blood supply and lymphatic drainage of the viscera.
		Ll 38	Arch of the aorta. Thoracic aorta. Subclavian artery. The aorta.		
L14	Venous trunks of the body	Ll 40	Terminal branches of the abdominal aorta. Internal iliac artery.		
		Ll 41	External iliac artery. Axillary artery. Common carotid artery		
L15	Lymphatic system.				
		Ll 43	Venous basin of the cranial vena cava. Venous basin of the caudal vena cava.		
L16	Organs of hemocytopoiesis and immune protection	Ll 44	Collector lymphatic vessels. Lymph nodes.		
		Ll 45	Central organs of hematopoiesis and immunogenesis.		
L17	System of endocrine glands	Ll 46	Organs of hematopoiesis and immunogenesis in the fetus.		
		Ll 47	INDZ Blood supply, lymph drainage of organs of the somatic and visceral groups of systems.		
L18	General neurology. Spinal cord.	Ll 48	Central endocrine glands .		
		Ll 49	Peripheral endocrine glands.		
L19	Spinal nerves	Ll 50	General Neurology. Spinal cord. Spinal nerve. Cervical and thoracic nerves.		1. Spinal cord vessels 2. Innervation of the hand in different animals 3. Innervation of the foot in different animals 4. Brain development in ontogenesis 5. Arteries of the brain 6. Veins of the brain
		Ll 51	Brachial plexus nerves. Lumbar nerves. Lumbar plexus. Sacral and caudal nerves. Sacral plexus.		
L20	Cerebrum	Ll 52	Cerebrum.		
		Ll 53	Cranial nerves.		

L21	Cranial nerves	Ll 54	The sympathetic part of the autonomic nervous system. Sympathetic innervation of organs of the somatic group of systems. Sympathetic innervation of organs of the visceral group of systems.		7. Development of the cranial nerves. Characteristics of the motor cranial nerves 8. Sympathetic innervation of the pelvic organs 9. Parasympathetic innervation of the pelvic organs 10. Metasympathetic part of the autonomic nervous system 11. Tactile analyzer 12. Proprioceptive analyzer 13. INDZ. Innervation, blood supply, and lymphatic drainage of the organs of the somatic and visceral systems.
		Ll 55	Parasympathetic autonomic system. Main part. Parasympathetic innervation of the head organs. Vagus nerve.		
		Ll 56	Parasympathetic innervation of the thoracic and abdominal organs.		
L22	Characteristics of the autonomic nervous system.	Ll 57	Sacral part parasympathetic autonomous system.		
L23	Esthesiology	Ll 58	Olfactory, gustatory, skin, musculoskeletal and visceral analyzers		
		Ll 59	Visual analyzer		
		Ll 60	Balance and auditory analyzers.		
		Ll 62	INDZ. Innervation and blood supply to organs of the somatic group of systems.		
		Ll 62	INDZ. Innervation and blood supply to organs of the visceral group of systems.		
Part 4. Anatomy of poultry, fish and bees					
L24	Factors that determined the features of the body structure of birds	Ll 63	Features of the structure of the skeleton, muscles and organs of the skin of the bird. Features of the structure of the organs of digestive, respiratory, genitourinary apparatus in poultry.		1. Connections between the bones of the wing and pelvic limb Features of the muscular system 2. Reproductive system 3. Heart, main veins of the bird's body 4. Features of the autonomic nervous system of birds 5. Skin, interoceptive, and proprioceptive analyzers of birds 6. Features of the skeleton and bone connections in fish. Muscular system of fish. 7. Anatomical structure of the digestive system in fish. Features of the urogenital system in fish 8. Blood-forming organs. Lymphatic system of fish. Endocrine glands of fish 9. Olfactory and gustatory analyzers in fish
		Ll 64	Features of the structure of the organs of the integral group in poultry.		
L25	Factors that determined the features of the body structure of fish	Ll 65	Preparation of organs of visceral and integral groups of systems in poultry. Features of the structure of the skeleton, muscles and organs of the skin of the fish.		
		Ll 66	Features of the structure of the organs of the digestive, respiratory, genitourinary apparatus in fish.		

L26	**Factors that determined the features of the body structure of bees**	**Ll 67**	**Features of the structure of the organs of the integral group in fish. Anatomy of a bee**		**10. Structure of the outer covering of the bee's body. Differences in the structure of the limbs. Structure of the wings** **11. Differences in the structure of the reproductive system of worker bees, drones, and queens** **Differences in the structure of the venom glands**

BASIC LITERATURE AND METHODOLOGICAL MATERIALS

Fixed literature

1. Anatomy of Domestic Animals. Systemic and regional approach / C Pasquini DVM, T Spurgeon PhD. Bookmarked & OCR by VetBooks.ir. 5th edition, 1989 – 660 p. https://www.amazon.com/Anatomy-Domestic-Animals-Systemic-Regional/dp/0962311421
2. Avian anatomy. Textbook and colour atlas / Horst E. König, Rüdiger Korbel, Hans-Georg Liebich. 2nd-edition 2016. – 359 p.
3. Veterinary Anatomy of Domestic Animals. Textbook and Colour Atlas / Horst Erich König, Hans-Georg Liebich. 7th, updated and extended edition. 2014. – 859 p.
4. Miller's Anatomy of the Dog / Howard E. Evans PhD, Alexander de Lahunta DVM, PhD. 4th edition, 2013 – 871 p.
5. Oral cavity, Tongue, Salivary glands, Teeth / Andrea Heinzlmann. Veterinary University Department of Anatomy and Histology 2019. – 177 p.

Methodological support

1. Somatic group of pet systems / Textbook for students of the Faculty of Veterinary Medicine in the specialties 211-Veterinary Medicine, 212-Veterinary Hygiene, Sanitation and Expertise. Additional edition, revised. Gorbatenko V. P., Bondarenko O. E., Miroshnikova O. S. //- Kharkiv: RVV Khdzva, 2019. – 245 p. (in Russian)
2. Entrails of Pets: A Textbook for Students of the Faculty of Veterinary Medicine in the Specialties 211-Veterinary Medicine, 212-Veterinary Hygiene, Sanitation and Expertise. / V. P. Gorbatenko, O. E. Bondarenko, O. S. Miroshnikova – Kharkiv: RVV KDZVA, 2020 – 220 p.
6. Vascular system. Endocrine glands of domestic animals. Textbook for students of the Faculty of Veterinary Medicine in the specialties 211: Veterinary Medicine /Gorbatenko V.P., Bondarenko O.E., Miroshnikova O.S. – Kharkiv: RVV Khdzva, 2020. – 164 p. (in Russian).
7. Nervous system. Pet Analyzers: Textbook for Students of the Faculty of Veterinary Medicine in the Specialties 211-Veterinary Medicine, 212-Veterinary Hygiene, Sanitation and Expertise / V.P. Gorbatenko, V.I. Symonenko, O.E. Bondarenko, O.S. Miroshnikova. – Kharkiv: RVV KDZVA, 2020 – 173 p.
5. Kushch M.M., Miroshnikova O.S., Fesenko I.A., Birka O.V. Anatomy of poultry: Textbook for students of the Faculty of Veterinary Medicine in the specialty 211 Veterinary Medicine. View. 2nd, ex. and additional. Kharkiv: RVV DBTU. 2023. 140 p. (Ukraine).
6. Kushch M.M., Miroshnikova O.S., Fesenko I.A., Birka O.V. Anatomy is the equivalent of living. Methodical manual on topographic anatomy for conducting educational practice of 1st year students of the Faculty of Veterinary Medicine. Kharkiv. DBTU. 2023. 44 p. (Ukraine).
7. INDZ on the anatomy of domestic animals. Methodological manual for the implementation of educational and research work of students. Field of Knowledge 21: Veterinary Medicine. Specialty 211-Veterinary Medicine / Miroshnikova O.S., Fesenko I.A. // State Biotechnological University. Kharkiv: RVV DBTU, 2022. – 52 p. (in Russian).
8. International Veterinary Anatomical Nomenclature. In Latin, Ukrainian and English / [V. T. Khomich, V. S. Levchuk, L. P. Goralsky, Y. S. Shykh, I. G. Kalinovska]. – Kyiv, 2005. – 388 p.
9. Rabbit Anatomy: A Brief Photographic Atlas and Dissection Guide, Part 1: Muscular System // Mukhopadhyay, Soma, Ruggiero Wagner Lisa. Augusta University, 2020. http://hdl.handle.net/10675.2/622930
10. Rabbit Anatomy: A Brief Photographic Atlas and Dissection Guide, Part 2: Cardioascular System // Mukhopadhyay, Soma, Ruggiero Wagner Lisa. Augusta University, 2023 https://scholarlycommons.augusta.edu/items/1a0e2708-3848-463c-90b4-0fafdcb52f80

ELECTRONIC RESOURCES

1. **https://vetbooks.ir/veterinary-anatomy-of-domestic-animals-textbook-and-colour-atlas-7th-edition/**
2. **https://www.vet-ebooks.com/anatomy-of-domestic-animals-systemic-and-regional-approach-5th-edition/**
3. **https://www.vet-ebooks.com/atlas-of-animal-anatomy-and-histology/**
4. **https://norecopa-no.translate.goog/norina/rabbit-anatomy-3d-model?_x_tr_sl=en&_x_tr_tl=uk&_x_tr_hl=uk&_x_tr_pto=sc**
5. **https://www.vet-ebooks.com/avian-anatomy-textbook-and-colour-atlas-pdf/**
6. **https://vetbooks.ir/anatomical-atlas-of-domestic-birds/**

Electronic course of the discipline "Anatomy of Domestic Animals" for students in the specialty 211 "Veterinary Medicine", on the basis of complete secondary general education
http://moodle.btu.kharkiv.ua/course/view.php?id=1676

EVALUATION SYSTEM

SYSTEM		POINTS	ACTIVITY TO BE EVALUATED
Final assessment (different credit, exam)	100 points ECTS (standard)	up to 100	40 % - Final testing 60 % - student's current work during the semester
Final assessment (non-differential credit)	100 points ECTS (standard)	up to 100	100 % - average grade for sections
Rating of section	100 points total	up to 30	30 % - answers to test questions
		up to 30	30 % - the result of mastering the block of independent work
		up to 40	40 % - student activity in class (oral answers)

NORMS OF ACADEMIC ETHICS AND INTEGRITY

All participants in the educational process (including students) must comply with the code of academic integrity and the requirements that are prescribed in the regulation "On the academic integrity of participants in the educational process of DBTU": to show discipline, well-manneredness, respect the dignity of each other, show benevolence, honesty, responsibility.