PHYSIOLOGY OF ANIMALS

SYLLABUS OF EDUCATIONAL COMPONENT

specialty	**211 veterinary medicine**	**mandatory discipline**	**mandatory**
educational program	**Veterinary medicine**	**faculty**	**veterinary medicine**
educational level	**second (master's) level**	**chair**	**physiology and biochemistry of animals**

TEACHER

Larisa Vodopianova - http://btu.kharkov.ua/wp-content/uploads/2022/12/VodopianovaLA.pdf

Higher education - veterinary specialty
Scientific degree - candidate of biological sciences 03.00.19 - cryobiology
Academic title - associate professor
Work experience - more than 17 years
Indicators of professional activity in the subject of the course:

- Author of more than 20 methodological instructions for practical and independent work on the subject of the course;
- Advanced qualification for international internship at the National Research Center "Institute of Experimental and Clinical Veterinary Medicine" on the topic: Modern laboratory methods of diagnosis used in physiological research. NNC "Institute of Experimental and Clinical Veterinary Medicine", 180/6 ECTS credits, 2024.
- Internship at the "Odesa International Academy" on the topic: "Neurophysiology with the basics of zoopsychology", 120/4 ECTS credits, 2023.
- International certificate Certificate of international advanced training (webinar) - EUROPEAN ACADEMY OF SCIENCES & RESEARCH (EASR), Hamburg, Germany; " Introduction to systematic review and meta-analyses course", 09/22/2022, 0.46 ECTS credits (14 hours);
- International certificate Civil organization "International Foundation of Scientists and Educators" (IESF), Kyiv, Ukraine and Instytut Badawczo-Rozwojowy Lubelskiego Parku Naukowa Technologucznego Sp., Lublin, Poland. Certificate of international advanced training (webinare) "Non-formal education in the preparation of bachelors in the countries of the European Union and Ukraine", 20.02.2023, 1.5 ECTS credits (45 hours);
- Co-author / author of more than 130 thematic publications;
- Participant of scientific and methodical conferences on the subject of the course.

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GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT (DISCIPLINE)

Goal	providing students with theoretical and practical knowledge of the course of physiological processes in the body of animals of various species and teaching them methods of managing physiological functions to increase productivity and improve the quality of animal husbandry products.
Format	lectures, practical classes, independent work, individual tasks, laboratory work, team work
Detailing of learning results and forms of their control	• Ability to think abstractly, analyze and synthesize, conduct research at the appropriate level, learn and master modern knowledge, develop strategies for safe, sanitary animal keeping, know the terminology of ethology and zoopsychology, be able to use it correctly in your work (GC1, GC3, GC7, GC1, PLO1) / individual tasks, training • Ability to apply knowledge in practical situations, make informed decisions, communicate with representatives of other professional groups of various levels, formulate conclusions regarding the effectiveness of selected methods and means of keeping, feeding and treating animals, prevention of contagious and non-communicable diseases, as well as production and technological processes at enterprises on keeping, breeding or exploitation of animals (SC2, SC3, SC7, GC1, PLO3)/ individual tasks

	• The ability to use tools, special devices, devices, laboratory equipment and other technical means to carry out the necessary manipulations during professional activity, to develop quarantine and health measures, methods of therapy, prevention, diagnosis and treatment of diseases of various etiologies, to carry out educational activities among industry workers and population (GC2, GC7, SC1,) / individual tasks, essay • implementation of environmental protection mechanisms, application of knowledge of biosafety, bioethics and animal welfare in professional activity, knowledge of rules and requirements of biosafety, bioethics and animal welfare in the process of professional (GC3, GC7, 7, PLO1) / training, individual tasks
Scope and forms of control	7 ECTS credits (210 hours): 34 hours of lectures, 82 hours of laboratory and practical work, 94 hours of independent work, section control (4 sections); final control - credit /exam
Requirements of the teacher	timely completion of practicals, activity, teamwork
Enrollment conditions	credit / exam

COMPLEMENTS THE STANDARD OF EDUCATION AND THE EDUCATIONAL PROGRAM

Competences	GC 1. Ability to abstract thinking, analysis and synthesis. GC 2. Ability to apply knowledge in practical situations. GC 3. Knowledge and understanding of the subject area and profession GC 7. Ability to conduct research at the appropriate level. SC 1. The ability to establish the peculiarities 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 PLO 3. Determine the essence of physico-chemical and biological processes that occur in the body of animals in normal and pathological conditions.

STRUCTURE OF THE EDUCATIONAL COMPONENT

Section 1					
Lecture 1	Physiology, its subject and content . Composition, properties and functions of blood. Blood groups	**LC 1**	Methods of physiological research	**Independent and practical work**	1. Hemotransfusion in animals
Lecture 2	Formed elements of blood. Haemostasis. Haemoglobin. Haematopoiesis	**LC 2**	Blood physiology. Blood groups		
		LC 3	Study of the properties of erythrocytes		
		LC 4	Osmotic properties of cells		
		LC 5	Properties of haemoglobin		
		LC 6	Determination of the number of erythrocytes and leukocytes.		
		LC 7	Leukocyte formula		
		LC 8	Hematopoiesis		
		LC 9	Content test 1		
Section 2					
Lecture 3	Digestion in the oral cavity. Digestion in the single-chambered stomach and rumen	**LC 10**	Digestion in the oral cavity	**Independent practical**	2. Modern problems of pet nutrition. 3. Components of modern feed for pets
Lecture 4	Digestion processes in the small intestine	**LC 11**	Digestion in the stomach of monogastric animals.		
Lecture 5	Metabolism	**LC 12**	Digestion in the rumen		
Lecture 6	Physiology of excretory organs	**LC 13**	Transformation of nitrogen-containing substances in the antrum		

Lecture 7	Organs of the endocrine system. Physiology of lactation	**LC 14**	Composition and properties of pancreatic juice, bile and intestinal juice		
		LC 15	Gastrointestinal motility		
		LC 16	Methods of studying metabolism. Exchange of proteins, carbohydrates and lipids		
		LC 17	Research of energy processes and thermoregulation		
		LC 18	Studying the processes of selection		
		LC 19	The role of the kidneys in excretion. Stages of urine formation		
		LC 20	General endocrinology.		
		LC 21	Lactation. Formation and composition of milk		
		LC 22	Physiology of analysers. Eye. Organ of hearing and balance. 2 test		
Section 3					
Lecture 8	Physiology of arousal processes. Bioelectric phenomena in tissues	**LC 23**	Physiology of excitation processes	**Independent practical work**	4. General characteristics of different types of animal behavior (congenital or acquired)
Lecture 9	Physiology of muscles	**LC 24**	Tissue biocurrents		
Lecture 10	Functional value of nerves	**LC 25**	Properties of muscles		
Lecture 11	General physiology of the central nervous system	**LC 26**	Energetics of muscle contraction, work, fatigue		
Lecture 12	Functions of the spinal cord. Autonomic nervous system	**LC 27**	Properties of the nerve fiber		
Lecture 13	Functions of the brain.	**LC 28**	Structure of synapses. Mediators. Parabiosis		
Lecture 14	Higher nervous activity and conditioned reflexes	**LC 29**	Autonomic nervous system		
		LC 30	Reflex activity of the spinal cord.		
		LC 31	Properties of nerve centers		
		LC 32	Functions of individual parts of the brain		
		LC 33	Study of brain reflexes. Reticular formation		
		LC 34	Functions of the cortex of the cerebral hemispheres		
		LC 35	HNA		
		LC 36	3 Test		
Section 4					
Lecture 15	Physiology of the cardiovascular system	**LC 37**	Methods of studying the work of the heart. Analysis of the cardiac cycle	**Independent**	5. Lymphatic system in animals 6. Physiology of breathing during muscle work. Artificial respiration
Lecture 16	Physiology of the cardiovascular system	**LC 38**	Properties of cardiac muscle. Regulation of heart activity.		

Lecture 17	Physiology of breathing	**LC 39**	Hemodynamics		
		LC 40	Breathing mechanism.		
		LC 41	Regulation of breathing. 4 Test		

BASIC LITERATURE AND METHODOLOGICAL MATERIALS

Literature	1. Animal Physiology, From Genes to Organisms, Sherwood, Lauralee; Klandorf, Hillar; Yancey, 2013, Second edition/ Publisher: Cengage Learning, 896p. 2 . Whiting C. S. Human Anatomy & Physiology, Laboratory Manual / C. S. Whiting, KL Keller. - University of North Georgia: Frostburg State University, 2016. - 661 p.	**Methodical support**	2. Normal physiology of animals: Test's book / **Vodopyanova L.** , Bobritska O. - Kharkiv, 2021. - 108 p. 3. Normal physiology of animals: Lectures for the 1st semester. Textbook for the self-study students/ **Vodopyanova L.** , Bobritska O. – Kharkiv, 2021. – 116 p. 4. Normal physiology of animals: Practical. Textbook for the self-study of students B 63/ **Vodopyanova L.** , Bobritska O., Ugai K., Ieliseienko A. - Kharkiv: 2019. - 210 p. 5. Physiology of animals. Test tasks for writing control papers for foreign students of the II year 6.110101 "Veterinary Medicine". Yugai K.D., Bobrytska O.M., **Vodopyanova L.A.** // Kh.:, 2021. – 52 p. 8. Physiology of animals. Workbook for students of the first and second year of 211 first (bachelor's) and second (master's) degrees of higher education - 211 "Veterinary medicine" / Yugay K.D., Bobrytska O.M., **Vodopyanova L.A.** // Kh.:, 2023. – 108 p.

EVALUATION SYSTEM

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

NORMS OF ACADEMIC ETHICS AND CHARITY

All participants in the educational process (including those seeking education) must adhere to the code of academic integrity and the requirements set forth in the provision " On academic integrity of participants in the educational process of DBTU ": show discipline, good manners, respect each other's dignity, show kindness, honesty, and responsibility.