SYLLABUS OF THE EDUCATIONAL COMPONENT

PHYSIOLOGY OF ANIMALS

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

TEACHER

Olga Mykolaivna Bobrytska http://athra.btu.kharkiv.ua/browse?guid=/ATHRA/HNTUSG/B29094-42838-06876-41066

Higher education - veterinary

Scientific degree - doctor of veterinary sciences 03.00.13 - human and animal physiology

The academic title is professor

Work experience - more than 24 years

Indicators of professional activity in the subject of the course:

- The author of more than 25 methodological instructions for practical and independent work on the subject of the course;
- Свідоцтво про підвищення кваліфікації 00497087/000009-18 Національний науковий центр «Інститут експериментальної і клінічної ветеринарної медицини» НААН України, м. Харків, Освоєння методик біохімічних та імунологгічних досліджень для впровадження в навчальний процес та наукову роботу, 2019 р. (180 годин);
- Науково-педагогічне стажування в університеті природничих наук у Люблені на тему «Інованції в навчальному процесі студентів природничих спеціальностей: методи, підходи, технології» за фахом «Природничі науки» в обсязі 6 кредитів (180 годин) з 20 січня по 28 лютого 2020 року
- Міжнародний сертифікат In the international skills development (the webinar) on the theme «Online learning as a non-traditional form of the modern education on the example of the moodle platform». Certificate about the international skills development (the webinar) ES № 2517/2020 (16.11.20); Lublin, Republic of Poland; 1,5 ECTS credits (45 hours)
- Міжнародний сертифікат Громадянська організація «Международна фундація науковців та освітян» (IESF), м. Київ, Україна та Instytut Badawczo-Rozwojowy Lubelskiego Parku Naukowa Technologucznego Sp., Lublin, Poland. Certificate of internationa advanced training (webinar)
  « Interactive technologies of blended learning in educational institutions, based on European union and Ukraine's experience», 05.09.2022
  1,5 ECTS credits (45 hours);

- Webinar Digital transformation and technologies for all arias sustainable development of modern education, science and practice International university of applied science in Lomza, Poland1,5 кредита ECTS/ 45 годин
- Webinar Digital transformation and technologies for all arias sustainable development of modern education, science and practice International university of applied science in Lomza, Poland 0, 2 ECTS /6 годин
- Webinar Non-formal education in the preparation of bachelors in the countries of the European Union and Ukraine Громадянська організація «Міждународна фундація науковців та освітян» (IESF), м. Київ, Україна та Instytut Badawczo-Rozwojowy Lubelskiego Parku Naukowa Technologucznego Sp., Lublin, Poland. 1,5 кредита ECTS / 45 годин
- Науково-практичний семінар до Всесвітнього
  дня захисту лабораторних тварин Біоетичні аспекти використання використання лабораторних тварин експерименті: вітчизняний та міжнародний досвід за програмою обсягом 2 години / 0,1 кредита ЄКТС, Харків, Україна.
- Co-author / author of more than 200 thematic publications, including textbooks, manuals, monographs
- Participation in scientific and methodical conferences on the subject of the course.

phone number	**0505663678**	**E-mail**	**olga.bobritskaya2410@gmail.com**	**remote support**	**Moodle , Google Classroom , YouTube - https://www.youtube.com/@animalsphysiology**

GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

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 maintain homeostasis, 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	• The ability to think abstractly, analyze and synthesize, conduct research at the appropriate level, learn and master modern knowledge, develop strategies for safe, sanitary animal husbandry, know the terminology of ethology and zoopsychology, be able to use it correctly in one's work (GC1, GC 3, GC 7, SC1, PRN1) / 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 (GC 2, GC 3, GC 7, SC1, PRN3)/ 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 (GK 2, GK 7, SK1) / 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 activity (GC 3, GC 7, PRN1) / training, individual tasks
Scope and forms of control	9 ECTS credits (270 hours): 32 hours of lectures, 114 hours of laboratory and practical, 124 hours of independent work, current control (5 chapters); final control - assessment / exam
Requirements of the teacher	timely completion of practicals, activity, teamwork
Enrollment conditions	credit / exam

COMPLIANCE WITH THE EDUCATION STANDARD AND 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 different classes and species - mammals , birds, insects (bees), fish and other vertebrates.	**Program learning outcomes**	PLO 1. 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					
Chapter 1					
Lecture 1	**Topic 1** Physiology of excitation processes. Bioelectric phenomena in tissues	**Laboratory 1**	Methods of physiological research	**Independent and practical work**	1. General characteristics of different types of animal behavior (congenital or congenital) 2. Zoopsychology and mental processes in animals 3. Memory in animals
Lecture 2	**Topic 2** Physiology of muscles. Functional value of nerves	**LPZ Laboratory 2**	Physiology of excitation processes		
Lecture 3	**Topic 3** Functions of the spinal cord. Autonomic nervous system	**LPZ Laboratory 3**	Tissue biocurrents		
Lecture 4	**Topic 4** Functions of the brain	**LPZ Laboratory 4**	Physical properties of muscles		
Lecture 5	**Topic 5** Higher nervous activity and conditioned reflexes.	**LPZ Laboratory 5**	Strength, fatigue, muscle work		
		LPZ Laboratory 6	General principles of the structure of the central nervous system		
		LP Laboratory Z 7	Properties of the nerve fiber		
		LPZ Laboratory 8	Features of conduction of excitation by nerve fibers		
		LPZ Laboratory 9	Functions of the spinal cord		
		LP Laboratory Z 10	Properties of nerve centers		

		LPZ Laboratory 11	Autonomic nervous system		
	LPZ Laboratory 13	**LP Laboratory Z 12**	Functions of individual parts of the brain (brain stem)		
	LPZ Laboratory 14		Functions of individual parts of the brain (midbrain)		
	LPZ Laboratory 15		Reticular formation		
			Functions of individual parts of the brain (midbrain)		
		LPZ Laboratory 16	Study of brain reflexes.		
		LPZ Laboratory 17	Functions of the cortex of the cerebral hemispheres.		
		LPZ Laboratory 18	Higher nervous activity		
		Laboratory	Types of higher nervous activity, inhibition		
		Laboratory	Content section test 1		
Chapter 2					
Lecture 6.	Physiology of the heart	**Laboratory**	Methods of studying the work of the heart.	**Independent and practical work**	1. Features of blood circulation in various organs 2. Tissue respiration.
Lecture 7	Physiology of breathing	**LPZ 22**	Analysis of the cardiac cycle		
		LPZ 23	Properties of cardiac muscle.		
		LPZ 24	Regulation of heart activity.		
		LPZ 25	Hemodynamics		
		LPZ 26	Regulation of blood circulation		
		LPZ 27	Breathing mechanism		
		LPZ 28	External breathing		
		LPZ 29	Regulation of breathing.		
		LPZ 30	Test content section 2		
Chapter 3					
Lecture 8	Composition, properties and functions of blood. Blood groups	**LPZ 31**	Blood physiology.		1. Blood groups in animals
Lecture 9	Formed elements of blood. Hemostasis.	**LPZ 32**	Blood groups		

	Hemoglobin. Hematopoiesis			**Independent and practical work**	2. Modern methods of blood research 3. Hemotransfusion in animals 4. Preparations from blood and their use
		LPZ 33	Study of the properties of erythrocytes		
		LPZ 34	Osmotic properties of cells		
		LPZ 35	Properties of hemoglobin		
		LPZ 36	Determination of the number of erythrocytes		
		LPZ 37	Determination of the number of leukocytes.		
		LPZ 38	Leukocyte formula		
		LPZ 39	Hematopoiesis		
		LPZ 40	Content section test 3		
Chapter 4					
Lecture 10	Digestion in the oral cavity and in the single-chambered stomach	**LPZ 41**	Digestion in the oral cavity	**Independent and practical work**	1. Peculiarities of excretion in different species of animals 2. Prostaglandins . 3. Kidney and digestive system hormones.
Lecture 11	Peculiarities of digestion in ruminants' stomachs	**LPZ 42**	Digestion in the stomach of monogastric animals.		
Lecture 12	Digestive processes in the intestines	**LPZ 43**	Digestion in the rumen		
Lecture 13	Metabolism. Thermoregulation	**LPZ 44**	Composition and properties of pancreatic juice and bile.		
Lecture 14	Physiology of excretory organs	**LPZ 45**	Composition and properties of intestinal juice. Wall etching		
		LPZ 46	Methods of studying metabolism. Exchange of proteins, carbohydrates and lipids		
		LPZ 47	Research of energy processes and thermoregulation		
		LPZ 48	Function of excretory organs		
		LPZ 49	Study of processes of selection		
		LPZ 50	Content section test 4		
Chapter 5					
Lecture 15	Physiology of endocrine glands	**LPZ 51**	General endocrinology. Hypothalamus, pituitary gland, pineal gland. Thyroid gland.		

Lecture 16	Lactation. Physiology of analyzers	**LPZ 52**	Endocrine function of the pancreas and adrenal glands . Endocrine function of gonads	**Independent and practical work**	Differences in analyzers in animals of different species
		LPZ 53	Mammogenesis . Lactation		
		LPZ 54	Composition of milk and colostrum. Regulation of formation and release of milk		
		LPZ 55	Physiology of analyzers. Visual analyzer.		
		LPZ 56	Organ of hearing and balance. Taste analyzer		
		LPZ 57	Content section test 5		

BASIC LITERATURE AND METHODOLOGICAL MATERIALS

literature

1. Naumenko IN. IN., Dyakinsky AND. WITH., Demchenko IN. Yu., Wooden coI. D. Physiology of farm animals: Textbook. — the 2nd kind., processing and added _ / By ed. AND. D. Wooden who AND. WITH. Dyachinsky . — K.: Center educational literature, 2009. — 568 with.

2. Mazurkevich A.Y., Karpovskyi V.I., Kambur M.D. etc. Physiology of animals; Textbook; Second edition / Edited by A.Y. Mazurkevycha , V.I. Karpovskyi . - Vinnytsia: Nova Kniga, 2012 - 424p.

3. Physiology of farm animals (practicum): revised second edition./Ed. A.Y. Mazurkevich , V.O. Trokoza , V.I. Karpavskyi and others . - K.: Center for educational literature, 2015. - 240 p.

4. Animal Physiology , From Genes that Organisms , Sherwood , Lauralee ; Klandorf , Hillar ; Yancey , 2013, Second edition / Publisher: Cengage Learning , 896p.

5. Chaichenko H.M. Physiology of man and animals / Chaichenko H.M., Tsybenko V.O., Sokur V.D. - K.: Higher School, 2004. - 463 p.

6 . Whiting C. S. Human Anatomy & Physiology, Laboratory Manual / C. S. Whiting, KL Keller. - University of North Georgia: Frostburg State University, 2016. - 661 p.

7. Ganong V. Human physiology / Translation from English . under ed.. M. Gzytskoho – Lviv: BaK , 2002. – 784 p.

Methodical support

1. Physiology of animals. Synopsis of lectures 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.:, 2018. – 224 p.

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.: RVV KhDZVA, 2021. – 52 p.

6. "A method of correcting the functional state of the liver in dogs using bioresonance techniques" / I.I. Pavlusenko , O.M. Bobrytska, K.D. Yugai , **L.A. Vodopyanova.** Patent for a utility model No. 131532 IPC (2018.01) 27.10.2017, published 25.01.2019, Bulletin No. 2.

7. Vodopyanova L.A. Biochemical criteria for assessing the functional state of the bone marrow of dogs/L.A. Vodopyanova, O.M. Bobrytska, K.D. Yugai , S.L. Antipin // Scientific bulletin of LNUVMBT named after S.Z. Gzhitskoho - 2017. - Vol. 19., No. 73 - pp. 37-39.

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	**100 point ECTS (standard)**	**up to 50**	**50% of the average grade for the chapters**
		up to 50	**final testing**
Independent study	**100 points total**	**up to 50**	**answers to test questions**
		to 20	**oral answers in laboratory-practical classes**
		to 30	**the result of mastering the block of independent work**

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.