SYLLABUS OF THE EDUCATIONAL COMPONENT

VETERINARY CLINICAL BIOCHEMISTRY

specialty	**211 Veterinary medicine**	**mandatory discipline**	**mandatory**
educational program	**«Veterinary medicine»**	**faculty**	**veterinary medicine**
educational level	**master**	**department**	**internal diseases and clinical diagnosis of animals**

TEACHER

Vikulina Galina Viktorivna

Higher education – master of veterinary medicine, master of higher education pedagogy, master of philology
Scientific degree - candidate of veterinary sciences, specialty 16.00.01 - diagnosis and therapy of animals, doctor of philosophy
Academic title - associate professor
Work experience - 16 years
Indicators of professional activity on the subject of the course:

- author and co-author of about 60 scientific publications;
- co-author of the textbook "Veterinary Clinical Biochemistry" (2010)
- experience of scientific work of 19 years;
- participant of scientific and methodical conferences.

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GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

Aim	providing students with the necessary theoretical knowledge and practical SCills on the techniques of obtaining and preparing for research biological material obtained from animals, for conducting biochemical research, extracting biochemical indicators and their further interpretation.
Form	lectures, laboratory classes, independent work, individual taSCs.
Detailing of learning results and forms of their control	• To know and correctly use the terminology of veterinary medicine (PLO1) / individual and laboratory classes. • To use information from domestic and foreign sources to develop diagnostic, treatment and business strategies (PLO 2) / individual and laboratory classes. • To determine the essence of physico-chemical and biological processes that occur in the body of animals in normal and pathological conditions (PLO3) / individual and laboratory classes. • To establish a connection between the clinical manifestations of the disease and the results of laboratory studies (PLO5) / individual and laboratory classes.
Scope and forms of control	5 ECTS credits (150 hours): 26 hours of lectures, 56 hours of laboratory classes; 68 hours of independent work, current control (3 chapters); final control - differentiated assessment.
Requirements of the teacher	timely completion of taSCs, activity, teamwork
Enrollment conditions	according to the curriculum

COMPLIANCE WITH THE EDUCATION STANDARD AND EDUCATIONAL PROGRAM

Competencies	GC1. Ability to abstract thinking, analysis and synthesis. GC2. Ability to apply knowledge in practical situations. GC7. Ability to conduct research at an appropriate level. GC8. Ability to learn and master modern knowledge. GC9. Ability to make informed decisions. GC11. The ability to evaluate and ensure the quality of the work performed. 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. SC2. The ability to use tools, special devices, devices, laboratory equipment and other technical means to carry out the necessary manipulations during professional activities. SC6. Ability to select, pack, fix and send samples of biological material for laboratory research. SC7. Ability to organize and conduct laboratory and special diagnostic studies and analyse their results.	**Program learning outcomes**	PLO1. Know and correctly use the terminology of veterinary medicine PLO2. Use information from domestic and foreign sources to develop diagnostic, treatment and business strategies PLO3. Determine the essence of physico-chemical and biological processes that occur in the body of animals in normal and pathological conditions PLO5. To establish a connection between the clinical manifestations of the disease and the results of laboratory studies

STRUCTURE OF THE EDUCATIONAL COMPONENT

Chapter 1. General veterinary clinical biochemistry					
Lecture 1-2	Introduction. Research objects and methods in veterinary clinical biochemistry	**LPC 1-3**	Organization of biochemical research in veterinary medicine	**Independent work**	Rules for the selection of feces for biochemical research. Coprogram in normal and pathological conditions. Characteristics of physicochemical methods in clinical biochemistry. Adiposity. Lipomobilization syndrome. Fatty infiltration of the liver. Violations in the exchange of some trace elements. Disorders in the metabolism of some vitamins. Vitamin-like substances. Clinical reproductive endocrinology.
Lecture 3-4	Violation of protein metabolism in case of pathology of internal organs of animals				
Lecture 5	Violation of carbohydrate metabolism in case of pathology of internal organs of animals	**LPC 4-5**	Biochemical study of indicators of protein metabolism		
Lecture 6	Violation of lipid metabolism in case of pathology of internal organs of animals	**LPC 6**	Biochemical study of indicators of non-protein nitrogenous components		
Lecture 7	Violations of water-ion exchange and acid-base balance in case of animal diseases	**LPC 7**	Biochemical study of indicators of carbohydrate metabolism in pathologies		
		LPC 8	Diabetes mellitus: diagnostic criteria		
		LPC 9	Biochemical study of indicators of carbohydrate metabolism		
		LPC 10-12	Biochemical study of indicators of lipid metabolism in pathologies		
		LPC 13	Violation of the metabolism of macro- and microelements in case of animal diseases		
		LPC 14	Biochemical study of indicators of water-ion exchange		
		LPC 15	Clinical vitaminology		
		LPC 16	Biochemical changes in the case of neoplasms		
Chapter 2. Special veterinary clinical biochemistry					
Lecture 8	Clinical enzymology	**LPC 17,18**	Enzyme diagnosis	**Independent work**	Hormones of the gastrointestinal tract. Disorders of the functioning of the rumen (lactic acidosis, tympany of the rumen, urea poisoning).
Lecture 9	Biochemical studies in diseases of the heart and lungs	**LPC 19**	Veterinary clinical biochemistry in case of heart diseases		
Lecture 10-11	Biochemical studies in diseases of the liver and biliary tract	**LPC 20**	Veterinary clinical biochemistry in the case of lung diseases		
Lecture 12	Biochemical studies in diseases of the urinary system	**LPC 21**	Veterinary clinical biochemistry in the case of diseases of the gastrointestinal tract and pancreas		
		LPC 22-24	Veterinary clinical biochemistry in the		

			case of pathology of the urinary system		
		LPC 25	Biochemical studies in diseases of the liver and biliary tract		
Chapter 3. Interpretation of biochemical studies					
Lecture 13	Peculiarities of the approach to the interpretation of biochemical research results	**LPC 26-28**	Peculiarities of interpreting the results of biochemical studies of biological substrates	**Independent work**	Written individual work with the result of a biochemical study of biological material obtained from an animal with internal pathology. This paper describes and summarizes existing changes in blood biochemical indicators and provides a conclusion.

BASIC LITERATURE AND METHODOLOGICAL MATERIALS

Kaneko J., Harvey J., Bruss M. Clinical Biochemistry of Domestic Animals, 6th Edition. – Academic Press, 2008. – 928 p.

Squires E.James. Applied animal endocrinology. - CABI Publishing, 2003. – 252 p.

Atlas of comparative diagnostic and experimental hematology / Clifford Smith and Alfred Jarecki; foreword by Harold Tvedten. – 2nd ed. 142 p.

David L. Panciera, Anthony P. Carr. Endocrinology for the small animal practioner. – Teton NeewMedia, 2005. – 195 p.

Kerr M.G. Veterinary laboratory medicine: clinical biochemistry and haematology. – John Wiley & Sons, 2008. – 386 p.

Harvey J.W. et al. Clinical biochemistry of pregnant and nursing mares //Veterinary clinical pathology. – 2005. – Т. 34. – №. 3. – С. 248-254.

Kramer J.W., Hoffmann W.E. Clinical enzymology //Clinical biochemistry of domestic animals. – Academic Press, 1997. – С. 303-325.

Radostits O.M. et al. Veterinary clinical examination and diagnosis. – WB Saunders, 2000.

Newsholme, E. A. Functional biochemistry in health and disease / Eric Arthur Newsholme and Tony R. Leech, 2010. – 561 p.

Rosenthal, Miriam D. Miriam D. Rosenthal and Robert H. Glew. Medical biochemistry: Human metabolism in health and disease, 2009. – 439 p.

N. Mallikarjuna Rao. Medical Biochemistry. – New Age International Publishers, 2006. – 838 p.

Methodical support

ELECTRONIC RESOURCES

http://moodle.btu.kharkiv.ua/course/view.php?id=425

EVALUATION SYSTEM

System		Score	ACTIVITY TO BE EVALUATED
Final assessment	100 point ECTS (standard)	to 100	50 % - final testing 50 % - current work of the student
Rating of section	100 points total	to 70	answers to test questions
		to 20	independent work
		to 10	student activity in classes

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 prescribed in the provision "On academic integrity of participants in the educational process of DBTU": show discipline, education, respect each other's dignity, show kindness, honesty, responsibility.