VETERINARY HYGIENE, SANITATION AND ANIMAL WELFARE

Specialty	**211 – Veterinary Medicine**	**Course commitment**	**Mandatory**
Educational Program	**Veterinary Medicine**	**Faculty**	**Faculty of Veterinary Medicine**
Education Level	**Master's Degree in Veterinary Medicine**	**Department**	**Department of Sanitation, Hygiene, and Forensic Veterinary Medicine**

Lecturer

Alla Mykolaivna Petrenko

Higher education Specialty of Veterinary Medicine
Degree - Candidate of Veterinary Sciences 16.00.06 Animal Hygiene and Veterinary Sanitation
Academic Status - Associate Professor of the Department of Sanitation, Hygiene and Forensic Veterinary Medicine
Work Experience - 20 years
Professional Activity Indicators Related to the Course:

- Author of more than 3 methodological developments;
- Co-author of publications included in the Web of Science scientometric database;
- Co-author of 2 thematic publications listed in Ukraine's professional editions;
- Participant in scientific and methodological conferences.

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INFORMATION ABOUT THE EDUCATIONAL COMPONENT (COURSE)

Objective	Develop competencies in mastering and applying measures aimed at providing animals and poultry with high-quality water, feed, and optimal technological conditions for care and maintenance. The course also focuses on ensuring reliable veterinary and sanitary protection, preventing the introduction of infectious agents, and protecting the environment from livestock waste contamination.
Format	Lectures, practical sessions, independent work, individual assignments and team projects.
Detailing of learning outcomes and Assessment Forms	• **Understanding the importance of hygiene recommendations, requirements, norms, and rules (GC2, GC7, GC9, SC10, SC13, PLO7) / Simulation team project 1** • **Ability to use regulatory documents (GC2, GC7, SC16, PLO17) / Individual practical assignments** • **Compliance with Ukrainian legislation on veterinary medicine and animal protection, as well as EU regulations on the Five Freedoms principle. Ensure the most up-to-date requirements based on scientific developments by domestic and foreign researchers. (GC2, GC3, SC2, PLO17) / Training, team project 2** • **Ability to protect the environment from livestock waste and veterinary materials (GC3, GC7, GC9, GC12, SC10, SC16, PLO7) / Training, team project 2**
Credits and Assessment	**6 ECTS credits (180 hours): 34 hours of lectures, 68 hours of laboratory and practical activities, current control (4 tests), Final assessment - Differentiated credit**
Lecturer Requirements	**Timely completion of assignments, active participation, teamwork**
Enrollment Requirements	**Mandatory enrollment**

COMPLEMENTS THE STANDARD OF EDUCATION AND EDUCATIONAL PROGRAM

Competencies (GC)	**GC2** Ability to apply knowledge and make informed decisions regarding hygiene research of various age and gender groups of animals and poultry; **GC3** Ability to select the object and methods of hygienic research, conduct studies, analyze, summarize and compare the obtained results with literature data; **GC7** Ability to conduct research at an appropriate level, apply achievements of veterinary medicine (hygiene and sanitation), and suggest improvement for its further development; **GC9** Ability to make informed decisions regarding hygiene research under normal and pathological conditions. Ability to ensure high-quality implementation of hygienic research in animal husbandry; **GC12** Ability to organize sanitary-hygienic measures at livestock facilities to prevent environmental pollution	**Program Learning Outcomes (PLO)**	**PLO7** Formulate conclusions on the effectiveness of selected methods and means of animal care, feeding, and treatment, as well as the prevention of infectious and non-infectious diseases, along with production and technological processes at enterprises involved in the housing, breeding, or exploitation of animals of various classes and species; **PLO17** Knowledge of biosafety, bioethics, and animal welfare rules and requirements.

STRUCTURE OF THE EDUCATIONAL COMPONENT (DISCIPLINE)

1. Methods of Sanitary-Hygienic Assessment and Veterinary Control of the Microclimate in Livestock Premises.					
Lecture 1.	Introduction to the discipline. Features of the influence of physical properties of air on animals.	**LPC 1**	Sanitary and hygienic assessment of temperature and atmospheric pressure	**Independent work**	Sanitary and hygienic assessment of dust content in the air of livestock buildings (cowsheds, pigsties, stables, sheepfolds, poultry houses) Sanitary and hygienic control of ion concentration in the air of livestock buildings (cowsheds, pigsties, stables, sheepfolds, poultry houses) Sanitary and hygienic assessment of electromagnetic field intensity in livestock buildings (cowsheds, pigsties, stables, sheepfolds, poultry houses) Sanitary and hygienic assessment of noise intensity in livestock buildings (cowsheds, pigsties, stables, sheepfolds, poultry houses) Sanitary and hygienic assessment of bacterial contamination of the air in livestock buildings (cowsheds, pigsties, stables, sheepfolds, poultry houses)
Lecture 2.	The influence of radiant energy and illumination on the organism and productivity of farm animals.	**LPC 2**	Sanitary and hygienic assessment of humidity and hygrometric indicators		
Lecture 3.	Sanitary and hygienic assessment of the impact of the gas composition of the air environment on the animal organism and its hygienic significance	**LPC 3**	Sanitary and hygienic assessment of air velocity		
Lecture 3.	The impact of air dust and electromagnetic fields on farm animals	**LPC 4**	Sanitary and hygienic assessment of natural lighting		
		LPC 5	Sanitary and hygienic assessment of artificial lighting		
		LPC 6	Sanitary and hygienic assessment of carbon dioxide content in indoor air		
		LPC 7	Sanitary and hygienic assessment of ammonia content in indoor air		
		LPC 8	Sanitary and hygienic assessment of hydrogen sulfide content in indoor air		
2. Sanitary-Hygienic Control of Feed and Soil.					
Lecture 4.	Sanitary and hygienic requirements for feed and feeding of farm animals.	**LPC 9**	Sanitary and hygienic assessment of roughage quality	**Independent two**	Prevention of animal diseases caused by the use of feed contaminated with bacteria Prevention of animal diseases caused by feed containing toxic substances Prevention of animal diseases caused by poisonous plants Prevention of diseases caused by soil infections Express methods for general assessment of water pollution with organic substances. Sanitary and hygienic significance and methods for determining water hardness for animal drinking.
Lecture 5.	Prevention of animal diseases caused by feed.	**LPC 10**	Sanitary and hygienic assessment of grain and concentrated feed quality		
Lecture 6.	Sanitary and hygienic significance of soil	**LPC 11**	Sanitary and hygienic assessment of green and succulent feed quality		
Lecture 7	Sanitary and hygienic significance of soil self-purification	**LPC 12**	Hygienic control of soil condition based on physical properties		
		LPC 13	Hygienic control of soil condition based on water properties		
		LPC 14	Hygienic control of soil condition based on chemical indicators		

		LPC 15	Final exam.	**r k**	
3. Sanitary-Hygienic Assessment of Water.					
Lecture 8.	Sanitary and hygienic requirements for drinking water according to DerzhSanPin2.2.4.-171-10.	**LPC 16**	Sanitary and topographical survey of water sources (certification of water sources). Determination of the physical properties of water		Veterinary and sanitary rules for the use of wastewater. Calculation of ventilation and heat balance for typical projects and conclusions on animal welfare. Veterinary and sanitary protection on farms. Hygienic requirements for the transportation of animals. Prevention of transport stress.
Lecture 9.	The impact of drinking water quality on animal productivity and health	**LPC 17**	Determination of the reaction and oxidizability of water		
		LPC 18	Hygienic assessment of water for ammonia and nitrite content		
		LPC 19	Hygienic assessment of water for nitrate and chloride content		
		LPC 20	Sanitary and hygienic assessment of water purification and disinfection methods		
4. Veterinary-Sanitary Requirements for Livestock Facility Design, Construction, and Operation.					
Lecture 10	General sanitary and hygienic requirements for the design, construction, and operation of livestock facilities	**LPC 21**	General sanitary and hygienic requirements and regulatory documents for farm design		Hygienic requirements and methods of skin care and its derivatives in farm animals. Prevention of diseases in cattle and small ruminants related to housing conditions Hygienic significance of preventing diseases in pigs related to housing conditions Prevention of cold stress in suckling piglets Hygienic significance of preventing diseases in poultry related to housing conditions Hygienic significance of prevention of diseases in horses related to housing conditions Sanitary and hygienic significance of exercise for different animal species The sanitary and hygienic significance of hardening animals.
Lecture 11	Animal welfare	**LPC 22**	Sanitary and hygienic assessment of technological documentation for a typical project		
Lecture 12	Welfare of large and small ruminants	**LPC 23**	Calculation and assessment of room ventilation based on carbon dioxide content		
Lecture 13	Welfare of pigs	**LPC 24**	Calculation and assessment of room ventilation based on moisture content		
Lecture 14	Welfare of poultry	**LPC 25-26**	Calculation and assessment of room heat balance		
Lecture 15	Welfare of horses	**LPC 27**	Calculation of natural and artificial lighting in livestock buildings		
Lecture 16	Hygiene of animal husbandry during the summer grazing period	**LPC 28**	Calculation of manure and dung output		
	General sanitary and hygienic requirements for the design, construction, and operation of livestock facilities	**LPC 29**	Sanitary and hygienic assessment of conditions for keeping large and small cattle		
		LPC 30	Sanitary and hygienic assessment of conditions for keeping pigs		
		LPC 31	Sanitary and hygienic assessment of conditions for keeping horses		
		LPA 32	Sanitary and hygienic assessment of conditions for keeping poultry		
		LPC 33	Examination session.		
		LPC 34	General sanitary and hygienic requirements and regulatory documents for farm design		

CORE LITERATURE AND METHODOLOGICAL MATERIALS

Literature

1. Recommended reading
2. Basic reading: .1. Vidomchi normi tekhnologichnogo proektuvannya: Skotars'ki pidpriєmstva: VNTP-APK-01-05 / Minsil'gospprod Ukraïni. – K.: Noosfera, 2006. – 60 s.
3. Vidomchi normi tekhnologichnogo proektuvannya: Ptahivnic'ki pidpriєmstva: VNTP-APK-04-05 / Minsil'gospprod Ukraïni. – K.: Noosfera, 2005. – 68 s.
4. Vidomchi normi tekhnologichnogo proektuvannya: Svinars'ki pidpriєmstva: VNTP-APK-02-05 / Minsil'gospprod Ukraïni. – K.: Noosfera, 2005. –45 s.
5. Vidomchi normi tekhnologichnogo proektuvannya: Konyars'ki pidpriєmstva: VNTP-APK-06-07, Minagropolitiki Ukraïni, K.: – 2006.- 55 s.
6. Vidomchi normi tekhnologichnogo proektuvannya: Vivchars'ki i kozivnichi pidpriєmstva: VNTP-APK-03-05. Minsil'gospprod Ukraïni. – K.: Noosfera, 2005.-87s.
7. Gigiєna tvarin / M.V. Demchuk, M.V. Chornij, M.P.,Zaharenko M.O.,Visokos, – Harkiv.: Espada, 2006. – 520 s.: il..
8. Gigiєna tvarin ta veterinarna sanitariya : navchal'nij posibnik / A. O. Bondar, M. M. Poruchnik, L. O. Tarasenko, V. O. Rud'; za red. A. O. Bondar. – Mikolaïv: MNAU, 2018. – 179 s.
9. Zagal'na veterinarna profilaktika / M.V. Demchuk, O.V. Kozenko, O.G. Bogachik, I.V. Dvilyuk, V.V. Voronyak. – L'viv, SPOLOM, 2012. – 360s.
10. Sistemi utrimannya tvarin: navch. posib. / uklad. M. O. Zaharenko, V. M. Polyakovs'kij, L. V. Shevchenko [ta in.]. K. : Centr uchbovoï literaturi, 2016. 424s**.**

Material and technical support

1. Tables. Multimedia support.
2. Folders with illustrative and demonstration material.
3. Slide presentations.
4. Methodological guidelines for laboratory classes in the discipline "Animal Hygiene." Regulatory requirements for the microclimate of premises for the maintenance of farm animals and their energy-saving justification. Approved by the Ministry of Agrarian Policy and Food of Ukraine / M. O. Zakharenko, L. V. Shevchenko, L. V. Polovyi [ta in.]. – K. – Vinnytsia : VD «Edelveis i K», 2011. – 64 p.
5. Workshop for laboratory and practical classes on animal hygiene./ M.P. Vysokos, M.V. Chornyi, M.O. Zakharenko. Kharkiv: Espada,2003.-218 p.

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)

STANDARDS OF ACADEMIC ETHICS AND INTEGRITY

All participants in the educational process (including students) must adhere to the code of academic integrity and the requirements set out in the Regulation "On Academic Integrity of Participants in the Educational Process of BSTU": to be disciplined, well-mannered, respect each other's dignity, show goodwill, honesty, and responsibility.