

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
SUMY NATIONAL AGRARIAN UNIVERSITY**

**FACULTY OF VETERINARY MEDICINE**

**Department of Veterinary Sanitary Inspection, Microbiology, Hygiene and Pathological Anatomy**

**MODULE SYLLABUS**

**OK 15 BIOETHICS, BIOSAFETY, BIOSECURITY AND ECOLOGY**

Implemented within the educational program 21 VETERINARY MEDICINE  
in specialty 211 VETERINARY MEDICINE


Level of higher education: the second master's level of higher education

**Sumy – 2026**

Author:

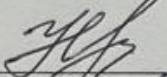


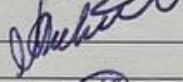
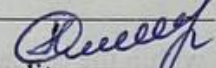
Fotina H.A., doctor of vet. science, Professor

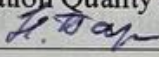
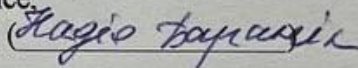
Module syllabus agreed at the Department of Veterinary and Sanitary Inspection, Microbiology, Hygiene and Pathological Anatomy	2. 06.2026 № 15
	The Head of Chair R.V. Petrov 

**Agreed:**

Guarantor of the educational program \_\_\_\_\_ Oleksandr CHEKAN

Dean of the faculty,  
where educational programs implemented \_\_\_\_\_  Lyudmila NAGORNA

Syllabus review (attached) is provided by: \_\_\_\_\_  (Fotina H.A.)  
\_\_\_\_\_  (Dal'sar Kocoba)

Representative of the Department of Education Quality assurance,  
licensing and accreditation \_\_\_\_\_  (H. Dap) \_\_\_\_\_  (Hagio bayarjav)

Registered in electronic data base \_\_\_\_\_ 23.06. \_\_\_\_\_ 2026

## **INFORMATION ON REVISIONS OF THE SYLLABUS**

Academic Year in which Changes are Introduced	Appendix Number to the Syllabus Describing Changes	Changes Reviewed and Approved	Date and Number of Meeting Minutes	Head of Department	Guarantor of the Educational Programme
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### **1. GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT**

No.	Item	Information
1.	Course Title	EC 11. BIOETHICS, BIOSAFETY, BIOSECURITY AND ECOLOGY
2.	Faculty Department	/ Faculty of Veterinary Medicine Department of Veterinary Sanitary Inspection, Microbiology, Hygiene and Pathological Anatomy
3.	Status of the Educational Component	Mandatory
4.	Educational Programme	/ Veterinary Medicine, 211 Veterinary Medicine Specialty
5.	The course may be offered for (elective courses only)	—
6.	NQF Level	Level 7
7.	Semester and Duration	of Semester 11, 15 weeks
8.	Study ECTS Credits	5 ECTS credits
9.	Total Workload and Distribution of Hours	Contact hours: 2 lecture hours; Self-study: 148 hours; Total: 150 hours
10.	Language of Instruction	English
11.	Lecturer Course Coordinator	/ Hanna A. Fotina, Doctor of Veterinary Sciences, Professor
11.1	Contact Information	Faculty of Veterinary Medicine, Office 39; E-mail: <a href="mailto:super.annafotina@ukr.net">super.annafotina@ukr.net</a>
12.	General Description Component	of The course provides knowledge of bioethics, biosafety, biosecurity, environmental safety, the Educational biological risk management and the One Health concept in veterinary medicine.

Aim of the To provide future veterinary medicine professionals with knowledge and competencies regarding bioethics, biosafety, biosecurity, environmental safety and implementation of the One Health concept.

13. Educational Component Prerequisites and

14. Relationship with Other Educational Components Biology, Medical and Biological Physics, Biochemistry, Cytology, Histology and Embryology, Anatomy of Domestic Animals, Animal Physiology.

15. Academic Integrity Policy Academic integrity requirements apply to all assignments and assessments.

16. Moodle Course Link <https://cdn.snau.edu.ua/moodle/course/view.php?id=3273>

17. Keywords Bioethics, Biosafety, Biosecurity, One Health, Animal Welfare, Environmental Safety, Antimicrobial Resistance

17. Keywords Bioethics, Biosafety, Biosecurity, One Health, Animal Welfare, Antimicrobial Resistance, Biological Risks, Environmental Safety, Bioterrorism, Veterinary Public Health.

## 2. LEARNING OUTCOMES OF THE EDUCATIONAL COMPONENT AND THEIR RELATIONSHIP TO PROGRAMME LEARNING OUTCOMES

Learning Outcomes (LO)	PLO 11	PLO 13	Assessment Methods
LO 1. Demonstrate knowledge of bioethics and professional ethics in veterinary medicine.	+		Oral questioning, tests, self-study tasks
LO 2. Explain One Health principles and assess zoonotic risks.	+		Case studies, tests, presentations
LO 3. Demonstrate knowledge of biosafety and biosecurity principles.		+	Presentations, reports, tests
LO 4. Apply biosafety requirements when handling biological agents.	+		Case analysis, assignments
LO 5. Understand the role of veterinary services in national biosafety and emergency response.		+	Reports, presentations

### 3. CONTENT OF THE EDUCATIONAL COMPONENT (COURSE PROGRAMME)

Topic	Lectures	Self-study	Literature
1. Bioethics as a Science and Professional Ethics	2	10	1–5
2. Animal Welfare and Five Freedoms	–	10	1–4
3. One Health Concept	–	10	1–5
4. Fundamentals of Biosafety	–	10	1–6
5. Biosecurity in Veterinary Medicine	–	10	1–6
6. Biological Threats and Bioterrorism	–	10	1–6
7. Biosafety in Veterinary Clinics and Farms	–	10	6–9
8. Biological Safety Levels (BSL-1–BSL-4)	–	10	6–9
9. Particularly Dangerous Infections	–	10	6–9
10. Antimicrobial Resistance and One Health	–	10	1–3
11. Ecology and Veterinary Medicine	–	10	1–3
12. Veterinary Waste Management	–	10	1–3
13. Environmental Safety and Ecological Monitoring	–	9	1–3
14. Biosafety of Ukraine during Wartime and Post-war Recovery	–	9	1–4
<b>Total</b>	<b>2</b>	<b>148</b>	

### 4. TEACHING AND LEARNING METHODS

Learning Outcome	Teaching Methods	Hours	Independent Learning Activities	Hours
LO 1	Lecture, discussions, consultations	2	Reports, presentations, case analysis	30
LO 2	Consultations	–	Literature review and reports	30
LO 3	Consultations	–	Risk assessment tasks	30
LO 4	Consultations	–	Case studies and assignments	29
LO 5	Consultations	–	Individual projects	29
<b>Total</b>		<b>2</b>		<b>148</b>
<b>Total</b>		<b>2</b>		<b>88</b>

### 5. ASSESSMENT OF THE EDUCATIONAL COMPONENT

#### 5.1 Diagnostic Assessment

Initial assessment of students' prior knowledge.

#### 5.2 Summative Assessment

No.	Assessment Activity	Points
1	Individual assignments	30

No.	Assessment Activity	Points
2	Presentation	20
3	Moodle Test 1	15
4	Analytical Report / Essay	15
5	Moodle Test 2	20
<b>Total</b>		<b>100</b>

Component	Unsatisfactory	Satisfactory	Good	Excellent
<b>Participation in discussions, consultations, and completion of individual assignments (20 points)</b>	< 12 points	12–14 points	15–17 points	18–20 points
Criteria	Assignment requirements have not been met.	Most requirements have been met, but some aspects are incomplete or insufficiently developed.	Assignment requirements have been fulfilled; responses demonstrate a good understanding of the topic.	All requirements have been fulfilled; critical thinking, originality, and thorough analysis are demonstrated.
<b>Presentation and oral discussion (20 points)</b>	< 12 points	12–14 points	15–17 points	18–20 points
Criteria	Presentation not prepared or does not meet requirements.	Presentation prepared but lacks clarity, logical structure, or sufficient argumentation.	Presentation meets the requirements and demonstrates good knowledge of the topic.	Presentation is comprehensive, well-structured, analytical, and demonstrates originality and independent thinking.
<b>Moodle Test 1 (15 points)</b>	< 9 points	9–10 points	11–13 points	14–15 points
Criteria	Less than 60% correct answers.	60–69% correct answers.	70–89% correct answers.	90–100% correct answers.
<b>Analytical Report</b>	< 9 points	9–10 points	11–13 points	14–15 points

Component	Unsatisfactory	Satisfactory	Good	Excellent
<b>Essay (15 points)</b>				
Criteria	Assignment not completed or does not meet requirements.	Basic requirements met, but analysis is limited.	Good analysis adequate use of sources.	Excellent quality with supported conclusions and extensive use of relevant sources.
<b>Moodle Test 2 (10 points)</b>	< 6 points	6–7 points	8 points	9–10 points
Criteria	Less than 60% correct answers.	60–69% answers.	70–89% correct answers.	90–100% correct answers.
<b>Final Examination (20 points)</b>	< 12 points	12–14 points	15–17 points	18–20 points
Criteria	Fundamental concepts of the course have not been mastered; answers are fragmentary or absent.	Basic knowledge has been acquired, but answers incomplete or insufficiently justified.	Good understanding of the course material; answers are logical and generally well-reasoned.	Excellent understanding of the course material; answers are comprehensive, analytical, and well-supported.

### 5.3. Formative Assessment

No. Formative Assessment Activities	Date
1. Oral feedback provided by the lecturer during the analysis of case studies and problem-solving activities	10–15 minutes at the end of each topic
2. Student feedback on learning activities and course materials	During the next class or consultation following the completion of a topic
3. Oral feedback from the lecturer and fellow students following presentations and independent study assignments	Weeks 6 and 14

### LEARNING RESOURCES

#### Core References

1. Kundiev, Yu. I. (Ed.). *Bioethics: textbook*. Kyiv: Avicenna Publishing House, 2021. 392 p.
2. Zaporozhan, V. M., Aryaiev, M. L. *Medical and Biological Ethics: textbook*. Kyiv: Zdorovia, 2005. 288 p.
3. Fotina, T. I., Berezovskyi, A. V., Rozputnii, M. V., Fotina, H. A. *General and Veterinary Ecology: study guide*. Kyiv: DIA, 2010. 501 p.

4. Ibatullin, I. I., Kandyba, V. M., Honcharenko, I. V. et al. *Farm Animal Welfare: study guide*. Kyiv: Agrarian Education, 2020. 256 p.
5. Law of Ukraine "On Veterinary Medicine" No. 1206-IX of 04 February 2021.
6. Law of Ukraine "On Protection of Animals from Cruelty".
7. Strategy for Ensuring Biosafety and Biosecurity Based on the One Health Approach.
8. World Organisation for Animal Health (WOAH). *Terrestrial Animal Health Code*. Paris: WOAH.
9. Fotina, H. A., Fotina, T. I., Nahorna, L. V. et al. *Fundamentals of Biosafety, Biosecurity, Bioethics and Veterinary Ecology. Veterinary Biosafety and Ecology Aspects: Methodological Guidelines for Laboratory-Practical Classes and Independent Study for Students of Specialty 211 Veterinary Medicine*. Sumy: Sumy National Agrarian University, 2024.

#### **Additional References**

10. Fotina, T. I., Fotina, H. A. Environmental Protection and Animal Advocacy in Ukraine. In: Nellist C. (Ed.). *Climate Crisis and Sustainable Creaturely Care*. Newcastle upon Tyne: Cambridge Scholars Publishing, 2021. Chapter 5.
11. Novoselska, L. P., Ivashchenko, T. H., Hanzhura, V. P., Kulinich, O. P. *Fundamentals of Biosafety: study guide*. Kyiv: Institute of Environmental Management and Sustainable Nature Use, 2017. 180 p.
12. Stehni, B. T., Herilovych, A. P., Ibatullin, I. I., Bisyuk, I. Yu., Komisarenko, S. V., Bohach, M. V. *Problems of Biosafety and Biosecurity in Veterinary Medicine and Biotechnology: monograph*. Kharkiv: NTMT, 2013. 413 p.
13. *One Health – 2025: Proceedings of the International Scientific Conference*. Kyiv: National University of Life and Environmental Sciences of Ukraine, 2025. 281 p.

#### **Information Resources**

14. Sumy National Agrarian University Repository. Available at: <https://repo.snau.edu.ua>
15. World Organisation for Animal Health (WOAH). Available at: <https://www.woah.org>

#### **Other Sources**

16. Wang, Y., Wang, X., Xu, Y., Fotina, H. Effects of probiotic *Clostridium butyricum* on performance, immunocompetence and digestive function of poultry. *Ukrainian Journal of Veterinary and Agricultural Sciences*. 2020. Vol. 3, No. 1. P. 27–33.
17. Tion, M. T., Shima, F. K., Ogbu, K. I., Omobowale, T. O., Amine, A. A., Nguetyo, S. A. et al. Genetic diversity of canine parvovirus variants circulating in Nigeria. *Infection, Genetics and Evolution*. 2021. Vol. 94. Article 104996.
18. Xu, P., Fotina, H., Fotina, T., Wang, S. Use of plant-derived drugs in the prevention and treatment of dairy cow mastitis. *Ukrainian Journal of Veterinary and Agricultural Sciences*. 2021. Vol. 4, No. 1. P. 24–28.
19. Zhao, X., Fotina, H., Wang, L., Hu, J. Antimicrobial peptides as novel alternatives to antibiotics. *Scientific Messenger of Lviv National University of Veterinary Medicine and Biotechnologies. Series: Veterinary Sciences*. 2020. Vol. 22, No. 98. P. 74–78.