

# SYLLABUS OF THE EDUCATIONAL COMPONENT



## VETERINARY MICROBIOLOGY

speciality	211 – Veterinary Medicine	Discipline status	mandatory
Field of knowledge	ветеринарна медицина	Faculty	Veterinary Medicine
educational level	Not limited	department	Department of epizootology and microbiology

### TEACHER

#### Harahulya Halina



Higher education - veterinary medicine specialty

Scientific degree - candidate of veterinary sciences, specialty 16.00.03-veterinary microbiology, virology and immunology

Academic title - associate professor

Work experience - 24 years

Indicators of professional activity on the subject of the course:

- author of 12 methodological developments;
- 22 years of experience in scientific work;
- participant of scientific and methodical conferences.

Tel.	0661333555	e-mail	vetvir.galina@gmail.com	remote support	Moodle
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Candidates of veterinary sciences, Basko Sabina, are involved in the teaching of the discipline

**GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT (DISCIPLINE)**

<b>The purpose of the discipline</b>	<b>"Veterinary Microbiology"</b> is formation of students' competences in mastering the methods of conducting laboratory diagnostics, in relation to the detection of pathogens of infectious diseases in the sent samples. Acquaintance with the causative agents of infectious diseases, the ability to identify and differentiate causative agents of infectious diseases, to determine the morphological, physiological, antigenic and pathogenic properties of causative agents; analyze the pathogenesis of infectious diseases, the epizootic situation and apply diagnostic and treatment-prophylactic means, make a reliable diagnosis and the ability to use means for specific treatment and prevention
<b>Format</b>	lectures, practical employment (occupations), self-contained work of students, consultations.
<b>Detailing of learning results and forms of their control</b>	The task of studying the discipline are ability to conduct research at an appropriate level. Ability to comply with the rules of safety, asepsis and antiseptics during professional activities. The ability to select, pack, fix and send samples of biological material for laboratory research. Ability to organize, conduct and analyze laboratory and special diagnostic studies. The ability to use tools, special devices, devices, laboratory equipment and other technical means to carry out the necessary manipulations during the performance of professional tasks. The ability to use tools, special devices, devices, laboratory equipment and other technical means to carry out the necessary manipulations during professional activities; The ability to observe the rules of safety, asepsis and antiseptics during professional activities. Ability to follow the rules of labor protection, asepsis and antiseptics during professional activity; The ability to apply the methods and techniques of patho-anatomical diagnosis of animal diseases to establish the final diagnosis and the causes of their death. Ability to organize, conduct and analyze laboratory and special diagnostic studies. Ability to select, pack, fix and send samples of biological material for laboratory research; Ability to organize and conduct laboratory and special diagnostic studies and analyze their results. Ability to plan and conduct laboratory studies of animals of infectious etiology.
<b>Scope and forms of control</b>	6 ECTS credits (180 hours): 18 hours of lectures, 54 hours of laboratory-practical classes; 78 hours of self-study, modular control (2 modules); final control - differentiated assessment.
<b>The teacher's requirements</b>	timely completion of tasks, activity, teamwork
<b>Enrollment conditions</b>	"free enrollment"

**COMPLEMENTS THE STANDARD OF EDUCATION AND THE EDUCATIONAL PROGRAM**

<b>Competences</b>	<ol style="list-style-type: none"> <li>1. Ability to think abstractly, analyze and synthesize, search, process information from various sources.</li> <li>2. Ability to apply knowledge in practical situations.</li> <li>3. The ability to conduct research at the appropriate level, make informed decisions, evaluate and ensure the quality of the work performed.</li> <li>4. The ability to understand and find out the peculiarities of the structure and functioning of cells, tissues, organs, their systems and apparatuses of the animal body.</li> <li>5. The ability to observe the rules of safety, asepsis and antiseptics during professional activities.</li> <li>7. The ability to conduct clinical research in order to formulate</li> </ol>	<b>Program learning outcomes</b>	<ol style="list-style-type: none"> <li>1. PRN 7. Collect anamnestic data during registration and examination of animals, find solutions regarding the choice of effective methods of prevention of animal diseases.</li> <li>2. PRN 8. Explain the essence and dynamics of the development of physiological processes that occur in the body of animals under the influence of environmental factors and the action of infectious agents.</li> </ol>
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conclusions about the condition of animals or establish a diagnosis.  
 8. Ability to develop prevention strategies.  
 9. The ability to carry out professional activities within the chosen specialization.  
 10. Ability to plan, organize and implement measures for the treatment of diseases of small animals.

**STRUCTURE OF THE EDUCATIONAL COMPONENT (DISCIPLINES)**

**Chapter 1 General veterinary microbiology**

Lecture 1	Introduction to microbiology	Practical classes 1 (PC 1)	Safety rules. Laboratory equipment.	Independent work	General information about different groups of prokaryotes Morphology and physiology of rickettsia and chlamydia Features of the structure of mycoplasmas.	
Lecture 2	Physiology and Culture of Microorganisms					
Lecture 3	Genetic of Microorganisms		PC 2			Types Of Microscopes Used In Biology Laboratory
			PC 3			Procedure of hanging drop method to test bacterial motility
			PC 4			Bacterial cell morphology
			PC 5			Preparing a smear for staining.
			PC 6			Preparing a smear for staining.
			PC 7			Gram staining procedure
			PC 8-9			Special Staining
			PC 10			Sterilization. Pasteurisation. Disinfection.
			PC 11			Aseptic technique.
			PC 12			Streak Plate Method. Colony morphology.
			PC 13			Types of culture media
Lecture 4	Classification of bacteria. Microorganism and the environment.		PC 14			Antimicrobial susceptibility testing. Animal inoculation
Lecture 5	Study about infection		PC 15			Final lesson (module #1)

## Chapter 2 Special veterinary microbiology

Lecture 6	Methods of Laboratory Diagnosis of Bacterial Infectious	PC 16	Agglutination Reaction. Ascoli test	Independent work	Concepts of vaccines, toxoids, therapeutic serums. Concepts of serological research methods. Agents of actinomycosis, Enterobacteriaceae (Colibacillosis, Salmonellosis), Leptospirosis. Vibriosis
		PC 17	Complement fixation test		
		PC 18	Immunofluorescence assay. Enzyme-Linked Immunosorbent Assay (ELISA)		
Lecture 7	Treatment and prevention of bacterial infections	PC 19	Neutralization reaction. Polymerase chain reaction (PCR)		
		PC 20	Diagnosis of staph infections		
		PC 21	Tuberculosis.		
Lecture 9	Anthrax.	PC 22	Streptococcus and Pasteurella		
		PC 23	Brucellosis. Plage - Black death		
		PC 24	Clostridial infections		
		PC 25	Preparing fungi specimen for observaiton under a light microscope		
		PC 26	Enterobacteriaceae (Colibacillosis, Salmonellosis)		
		PC 27	Final class. Test		

**BASIC LITERATURE AND METHODOLOGICAL MATERIALS**

1. Veterinary Microbiology / Editor(s): D. Scott McVey DVM, PhD, DACVM,, Melissa Kennedy DVM, PhD, DACVM,, M.M. Chengappa BVSc, MVSc, MS, PhD, DACVM,, Rebecca Wilkes DVM, PhD, DACVM, First published: 16 September 2022. Print ISBN:9781119650751 |Online ISBN:9781119650836 |DOI:10.1002/9781119650836.

2. Quinn P. J., Markey B. K., Leonard F. C., Hartigan P., Fanning S., Fitzpatrick E. S. (2012) Veterinary Microbiology and Microbial Disease. Second ed., 2012. – 916p.

#### Electronic information resources

<https://www.youtube.com/watch?v=SLkipIg4WRg>  
[https://www.youtube.com/watch?v=JHLsb97\\_wTA](https://www.youtube.com/watch?v=JHLsb97_wTA)  
<https://www.youtube.com/watch?v=v2X-D5Q9Unk>  
<https://www.youtube.com/watch?v=sxa46xKfIOY>  
<https://www.youtube.com/watch?v=Kw8tjK3pLVY&t=59s>  
[https://www.youtube.com/watch?v=JU4n\\_r5s2w](https://www.youtube.com/watch?v=JU4n_r5s2w)  
<https://www.youtube.com/watch?v=zDmP14twN8g>  
<https://www.youtube.com/watch?v=LSu8YmW4mhM>  
<https://www.youtube.com/watch?v=jCqA6TVSqFY>  
<https://www.youtube.com/watch?v=UN6xDdxL3rY>  
<https://www.youtube.com/watch?v=GAOCDMbDvRQ>  
<https://www.youtube.com/watch?v=CyeI0RE8Mwc>  
<https://www.youtube.com/watch?v=TaQ1cposDAE>  
<https://www.youtube.com/watch?v=U1LhM5MuohQ>  
<https://www.youtube.com/watch?v=5gmfYXIFXg0>  
[https://www.youtube.com/watch?v=q\\_C6xq7j-kg](https://www.youtube.com/watch?v=q_C6xq7j-kg)  
<https://www.youtube.com/watch?v=QTFBIeFpRqw>  
<https://www.youtube.com/watch?v=QTFBIeFpRqw>

#### EVALUATION SYSTEM

System		points	ACTIVITY TO BE EVALUATED
Final assessment	100 ECTS points (standard)	up to 50	50% of the average grade for the modules
		up to 50	final testing
Modular assessment	100 points total	up to 50	answers to test questions
		up to 20	oral answers in laboratory-practical classes
		up 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 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