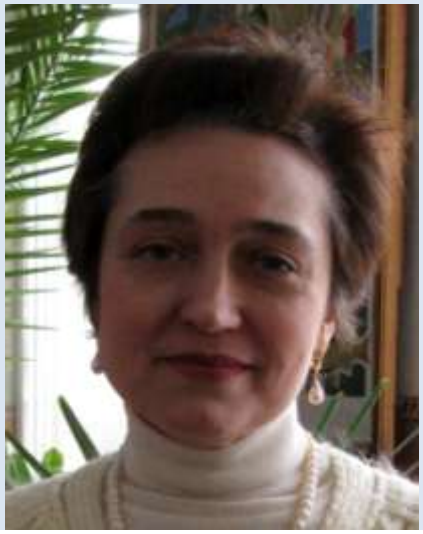
SYLLABUS OF THE EDUCATIONAL COMPONENT

VETERINARY MICROBIOLOGY

speciality	**211 – Veterinary Medicine**	**Discipline status**	**mandatory**
Field of knowledge	**Veterinary Medicine**	**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.

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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)	
The purpose of the discipline	"Veterinary Microbiology" 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
Format	lectures, practical employment (occupations), self-contained work of students, consultations.
Detailing of learning results and forms of their control	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.
Scope and forms of control	6 ECTS credits (180 hours): 18 hours of lectures, 54 hours of laboratory-practical classes; 78 hours of self-study, current control (2 chapters); final control - differentiated assessment.
The teacher's requirements	timely completion of tasks, activity, teamwork
Enrollment conditions	"free enrollment"

COMPLEMENTS THE STANDARD OF EDUCATION AND THE EDUCATIONAL PROGRAM			
Competences (GC and SC)	GC1. Ability to abstract thinking, analysis and synthesis. GC 2. Ability to apply knowledge in practical situations. GC 3. Knowledge and understanding of the subject field and profession. SC 2. The ability to use tools, special devices, devices, laboratory equipment and other technical means to carry out the necessary manipulations during professional activity. SC 3. Ability to observe the rules of labor protection, asepsis and antiseptics during professional activity. SC 6. The ability to select, pack, fix and send samples of biological material for laboratory research. SC 7. Ability to organize and conduct laboratory and special	Program learning outcomes (PLO)	PLO 1. Know and correctly use the terminology of veterinary medicine. PLO 2. Use information from domestic and foreign sources to develop diagnostic, treatment and business strategies.

	diagnostic studies and analyze their results. SC 11. Ability to apply knowledge of biosafety, bioethics and animal welfare in professional activities. SC 16. The ability to protect the environment from pollution by livestock waste, as well as materials and means of veterinary use.				
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=v2X-D5Q9Unk
https://www.youtube.com/watch?v=sxa46xKfIOY
https://www.youtube.com/watch?v=Kw8tjK3pLVY&t=59s
https://www.youtube.com/watch?v=JUp4n_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=5gmfYXlFXg0
https://www.youtube.com/watch?v=q_C6xq7j-kg
https://www.youtube.com/watch?v=QTFBIeFpRqw
https://www.youtube.com/watch?v=QTFBIeFpRqw

GRADING SYSTEM

SYSTEM		POINTS	ACTIVITY THAT IS ASSESSED
Summative assessment (differentiated test, exam)	100 ECTS points (standard)	to 100	40 % - final testing 60 % - student's current work during the semester
Section evaluation	100-point total	to 30	answers to test questions
		to 30	result of mastering the independent work block
		to 40	student activity in classes (oral answers)

NORMS OF ACADEMIC ETHICS AND INTEGRITY

All participants in the educational process (including students) must adhere to the code of academic integrity and the requirements stipulated in the regulation "On Academic Integrity of Participants in the Educational Process of DBTU": to demonstrate discipline, good manners, respect each other's dignity, show kindness, honesty, and responsibility.