

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		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. Plague - 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=JUUp4n_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-kq
<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.