EDUCATIONAL COMPONENT SYLLABUS

VETERINARY CYTOPATHOLOGY

specialty	**211 – Veterinary medicine**	**mandatory discipline**	**selective**
educational program	**veterinary medicine**	**faculty**	**veterinary medicine**
educational level	**Master's degree**	**department**	**normal and pathological morphology**

TEACHERS

Ulianytska Anastasiia

Higher education – specialty: veterinary medicine
Scientific degree - Candidate of Veterinary Sciences in specialty 16.00.02 - pathology, oncology and morphology of animals
Academic title – associate professor
Work experience – 21 years
Indicators of professional activity on the course topic:

- author of 10 educational and methodological special recommendation ;
- 21 years of scientific experience ;
- participant in scientific and methodological conferences.

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Participating teachers: Candidate of Veterinary Sciences, Associate Professor Olena Byrka
Candidate of Veterinary Sciences, Associate Professor Zakharyev Andriy

GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT	
Goal	**to develop students' competencies in performing cytological diagnostics of various pathologies, analyzing the results of microscopic examination of secretions, excretions, blood, exudates, smears, prints, and punctates obtained from sick animals, making informed decisions, and ensuring the quality of diagnostic investigations.**
Format	**lectures, laboratory classes, independent work, microscopy of cytological preparations by students with subsequent teacher control, solving situational problems, test control of knowledge, oral discussion.**
Detailing of learning outcomes and forms of their control	• **ability to organize, conduct cytological studies, select pathological material for the study, produce cytological smears (from punctate organs, tissues, natural cavities, smears-imprints, scrapings), determine the feasibility and quality of conducting cytological studies. (GC1, GC2, GC7,GCK8, GC9, GC11, SC1 ,SC2, SC3, SC6, SC7, PLO1, PLO2, PLO17) / Assessment during laboratory sessions, extracurricular activities, consultations, credits, and exams** • **The ability to perform microscopy of cytological preparations, recognize various pathological changes in cellular and extracellular structures at the microscopic level, determine various types of inflammation, alterative pathological processes, pathologies of tissue growth, neoplasia (CC1, CC2, CC7, SC1 , SC2, PLO1, PLO3, PLO17) / control in laboratory classes, in extracurricular hours, at consultations, tests and exams.** • **the ability to describe microscopic changes in pathological material during cytological examination, to analyze and summarize the obtained results of the study, to compare them with literary data, data from pathohistological and other clinical studies (GC1, GC2, GC3, GC8, GC1, PLO1, PLO3, PLO5, PLO17) / control in laboratory classes, in extracurricular hours, at consultations, tests and exams.** • **ability to make informed decisions during pathocytological examinations, establish a cytological diagnosis, draw up a conclusion on the conduct of cytological examination and provide appropriate explanations to veterinarians and animal owners regarding the established diagnosis (GC1, GC2, GC3, GC7, GC8, GC9, SC7 , PLO1, PLO3, PLO5, PLO17) / control in laboratory classes, in extracurricular time, at consultations, and in exams.** • **the ability to think abstractly, analyze, synthesize, search, and process information from various sources (GC1, GC3, GC7, SC1, SC2, PLO1, PLO2, PLO3, PLO17) / control in laboratory classes, in extracurricular time, at consultations, and in exams.**
Scope and forms of control	**3 ECTS credits (90 hours): 12 hours of lectures, 18 hours of laboratory classes, 60 hours of independent studies, current control (2 chapters); final control in the first semester - differentiated credit.**
Teacher requirements	**timely completion of tasks, activity, teamwork**
Enrollment in languages	**"free enrollment"**

COMPLEMENTS EDUCATION STANDARDS AND EDUCATIONAL PROGRAMS			
Competencies	GC1. The ability to think abstractly, analyze and synthesize, search, and process information from various sources. GC2. Ability to apply knowledge in practical situations. GC3. Knowledge and understanding of the subject area and profession. GC7. Ability to conduct research at an appropriate level. GC8. Ability to learn and master modern knowledge. GC9. Ability to make informed decisions. GC11. Ability to evaluate and ensure the quality of work performed. SC1. The ability to establish the features of the structure and functioning of cells, tissues, organs, their systems and apparatuses of the body of animals of different classes and species - mammals, birds, insects (bees), fish and other vertebrates. SC2. Ability to use tools, special devices, instruments, laboratory equipment and other technical means to perform the necessary manipulations during professional activities. SC3. Ability to comply with oGCupational safety, asepsis, and antisepsis rules during professional activities. SC6. Ability to select, package, fix and ship samples of biological material for laboratory research SC7. Ability to organize and conduct laboratory and special diagnostic tests and analyze their results	Programmable learning outcomes	PLO1. Know and correctly use the terminology of veterinary medicine. PLO2. Use information from domestic and foreign sources to develop diagnostic, treatment, and business strategies. PLO3. Determine the essence of physicochemical and biological processes that oGCur in the animal body normally and during pathology. PLO5 Establish a relationship between clinical manifestations of the disease and laboratory test results PLO17. Know the rules and requirements of biosafety , bioethics, and animal welfare.
STRUCTURE OF THE EDUCATIONAL COMPONENT			
Chapter 1. Fundamentals of veterinary cytopathology . Objects and methods of research, technique of examination of cytological preparations. Pathocytological diagnostics of general pathological processes.			

Lecture 1 (L1)	Introduction. Basis of cytological diagnostics.	Laboratory lesson 1 (Ll 1)	Objects and methods of research in veterinary cytopathology. Fine-needle aspiration and non-aspiration puncture. Indications and informativeness of cytological research in veterinary practice. Methods of staining cytological preparations. Identification of artifacts in cytological smears.	Independent work	1. Features of obtaining pathological material for cytological examination of various organs and tissues (skin, breast, parenchymal organs, mucous membranes, bones, bronchi, lungs, etc.) 2. Trichoscopy methods , interpretation of results 3. Cytochemical, immunocytochemical research methods. Cell block method 4. Characteristics of hemoglobinogenic pigments in cytological diagnostics. 5. Cytological diagnosis of eosinophilic inflammation. 6. Cytological diagnosis of blood cell pathologies. 7. Cytology of exudates, synovium, liquor. 8. Features of cytological diagnostics in cases of suspected infectious and parasitic diseases of various animals.
		Ll 2	Technique of cytological preparation examination. Rules and algorithm of cytological preparation microscopy, establishing the diagnostic value of cytology Identification of different cell populations in a cytological preparation (different types of epithelium, cells and extracellular matrix) mesenchymal tissues)		
L2	Microscopic characteristics of cell populations in normal and pathological conditions.	Ll 3	Characteristics of structural pathology of cells, cytological anaplasia. Cytological diagnostics of alternative pathological processes, dystrophies, necrosis, apoptosis .		
L3	Pathocytological diagnostics alterative pathological processes , inflammation	Ll 4	Cytological diagnostics of various types of inflammation, determination of specific signs of exudative and productive inflammation using microscopy of cytological preparations		
Chapter 2. Cytological examination of tissue growth pathologies, neoplasia Documentation in veterinary cytology					
L4	Cytological diagnosis pathologies of tissue growth.	Ll 5	Cytological diagnosis of reparative changes, reactive fibroplasia , hyperplasia, hypertrophy, metaplasia , dysplasia .	Independent work	1. Comparison of the results of histological and cytological examination in various neoplasias. 2. The importance of cytological anaplasia in the diagnosis of various animal tumors. 3. Cytological diagnostics of tumors of the stomach, intestines, liver. Features of
		Ll 6	Features of cytological diagnostics of epithelial, mesenchymal and round cell tumors. Criteria for tumor malignancy in cytological diagnostics		
L5	Basics of cytological diagnosis of tumors	Ll 7	Cytological diagnosis of epithelial skin tumors, skin gland tumors, tumors of mammary gland. Cytological diagnosis of melanocytic tumors.		

					cytological examination of puncture and endoscopic pathological material.
L6.	Cytological diagnosis of round cell tumors	Ll 8	Cytological diagnosis of round cell skin tumors: mastocytomas, histiocytomas, plasma cell tumor. Cytological diagnosis of mesenchymal tumors. Cytological diagnostics of lymphomas.		4. Cytological diagnosis of kidney and bladder tumors. 5. Cytological diagnosis of endocrine/neuroendocrine tumors. 6. Individual simulation tasks
		Ll 9	Documentation in veterinary cytology. Conclusion. Solving situational problems in cytological diagnostics of various animal pathologies. Interpreting the results.		

BASIC LITERATURE AND METHODOLOGICAL MATERIALS

Basic literature

1. Albanese Francesco. Canine and Feline Skin Cytology. Springer International Publishing Switzerland, 2017. 535 p.
2. Burton AG Clinical atlas of small animal cytology. 2018. 380
3. Francesco C., Freeman KP Veterinary Cytology: Dog, Cat, Horse, and Cow. Taylor & Francis Group, LLC, 2017. 240 p.
4. Lorenzo R., Wiley J. Normal cell morphology in canine and feline cytology: an identification guide. Ressel & Sons Ltd, 2018.
5. Meuten D. J. Tumors in Domestic Animals. John Wiley & Sons, Inc. First edition, 2017. 997 p.
6. Raskin RE, Meyer DJ, Atlas of Canine and Feline Cytology . Saunders , Elsevier , St. Louis . 2016. 240

Methodological support

1. Basic lecture notes on the elective discipline "Veterinary Cytopathology " for students of veterinary medicine faculties of higher educational institutions. Ulyanytska A.Yu., Lyakhovich L.M., Zakhar'iev A.V., Byrka O.V., Kushch M.M. DBTU, 2023. – 72 p.
2. Methodical manual for independent study of macroscopic ("wet") and pathohistological preparations. Part 1. Pathomorphological characteristics of tumors, for students of veterinary medicine faculties. Kushch M. M., Ulyanytska A. Yu., Lyakhovych L. M. Kh.: KhDZVA, 2020. 24 p.
3. Test control on the discipline "Veterinary cytopathology ", for students of the Faculty of Veterinary Medicine, specialty 211 "Veterinary Medicine". Ulyanytska A. Yu., Lyakhovich L.M., Zakhar'ev A.V. , Byrka O.V., ., Kushch M.M. . Kh. :DBTU, 2024. – p.

ELECTRONIC RESOURCES

Veterynary cytology https://veterinarycytology.org/
https://www.youtube.com/@francescocian226/videos
Electronic course in the discipline "Veterinary Cytopathology " for students majoring in "Veterinary Medicine"
http://moodle.btu.kharkiv.ua/course/view.php?id=1687

EVALUATION SYSTEM

SYSTEM	POINTS	ACTIVITY THAT IS ASSESSED

Final assessment (different credit, exam)Final evaluation	**100 ECTS points (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)**

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 SBTU": to demonstrate discipline, good manners, respect each other's dignity, show kindness, honesty, and responsibility.