

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SUMY NATIONAL AGRARIAN UNIVERSITY

Virology, Pathanatomy and Poultry Diseases
after Prof. I.I. Panikar Department
Faculty of Veterinary Medicine

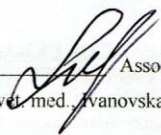
MODULE SYLLABUS
Pathological anatomy
compulsory
(compulsory/optional)


Implemented in the "Pathological anatomy" Academic Program

Area of specialization 211 -Veterinary medicine

at the second (magister's) level of higher education

Sumy-2021


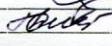
Author:  Associate Professor of Virology, Pathanatomy and Poultry Diseases
Department, c. vet.med., Ivanovskaya L.B.

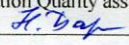
Module syllabus agreed at the of Virology, Pathanatomy and Poultry Diseases Department meeting	Minutes No 12 dated June 08. 2021
	Head Department, professor <u></u> (Petrov R.V.)

Approved by:

Guarantor of the Academic program  (Ulko L.G)

Dean of the Faculty  (Nechiporenko AL)

Syllabus review (attached) is provided by :  (Utkomaga O. I.)
 (Baizhebekmola S. B.)

Representative of the Department of Education Quality assurance, licensing and accreditation  (S. Napatich)

Registered in electronic data base 13.07. 2021

Syllabus review data:

The academic year in which changes are made	The Academic program attachment number with changes description	Changes revised and approved		
		Minutes No and date of the department meeting	Head of Department	Guarantor of the Academic program
2021-2022				

1. MODULE OVERVIEW

1.	Title	Pathological anatomy		
2.	Faculty/Department	Faculty of Veterinary Medicine, Virology, Pathanatomy and Poultry Diseases after Prof. I.I. Panikar Department		
3.	Type (compulsory or optional)	compulsory		
4.	Program(s) to which module is attached (to be filled in for compulsory types)	OP Veterinary Medicine Is the basis for the study of comparative pathomorphology and forensic veterinary examination by experts.		
5.	Module can be suggested for (to be filled in for optional types)			
6.	Level of the National Qualifications Framework	7		
7.	Semester and duration of module	5 and 6 semesters, weeks 25		
8.	ECTS credits number	5		
9.	Total workload and time allotment	Directed study		Self-directed study
		Lectures	Practicals	Labs
		4/4		4/6
10.	Language of instruction	English		
11.	Module leader	Associate Professor of Virology, Pathanatomy and Poultry Diseases Department, c. vet. med. Ivanovskaya L.B.		
12.	Module leader contact information	FVM, office 15 or 17, 0965384585, lusj0951@gmail.com consultations every Friday from 14-15 to 15-30		
13.	Module description	Among the leading special disciplines in the system of veterinary education an important place is occupied by pathological anatomy (Greek pathos - suffering, painful condition, anatome - incision) - a science that studies the abnormal structure of the animal and human body that occur during the disease. Pathological anatomy (pathological morphology, gr. Morphe - form) is an integral part of pathology - a science that studies the whole complex of problems of the patient's body. <i>Pathological anatomy</i> studies not only pathological processes arising from the influence of disease-causing factors, but also the processes of recovery, adaptation, compensation for lost structures and functions, immunological processes, ie those complex reactions of the body that are aimed at protecting it from disease.		
14.	Module aim	The purpose of the course: is to train a veterinarian in pathology, to provide a clear idea of the material basis of the disease, using the achievements of general biological (anatomy, histology, physiology, biochemistry, etc.) and related sciences. Knowledge of pathological anatomy is basic in the study of clinical disciplines and therefore this science plays an important integrative role in the complex of special veterinary sciences, in the scientific and practical activities of a		

		veterinarian.
15.	Module Dependencies (prerequisites, co-requisites, incompatible modules)	1. The educational component is based on the study of normal animal anatomy, cytology, histology, embryology, biochemistry, normal and pathological physiology, virology. 2. The educational component is the basis for the study of veterinary examination, epizootology, parasitology, comparative pathomorphology and forensic veterinary examination.
16.	The policy of academic integrity	Attendance is mandatory, unacceptable delays, students must follow the rules of conduct in class; You are not allowed to write off and use mobile phones while writing tests, taking tests and exams. Rearrangement of modules occurs for good reasons. Abstracts must have references to the literature used.
17	Link in Moodle	5semester https://cdn.snau.edu.ua/moodle/enrol/index.php?id=4371 6semester https://cdn.snau.edu.ua/moodle/enrol/index.php?id=4500

2. CORRELATION BETWEEN MODULE LEARNING OUTCOMES (MLOs) AND PROGRAM LEARNING OUTCOMES (PLOs)

MLOs: On successful completion of the module the learner will be able to:	PLOs							How assessed
	PLOs 1	PLOs 2	PLOs 3	PLOs 5	PLOs 6	PLOs 9	PLOs10	
MLOs 1. - to determine at the microscopic level signs of a disorders of the morphology of the cell, as well as in protein dystrophies; - to determine at macro- and microscopic levels changes in cells and organs in fat, carbohydrate and mineral dystrophies, necrosis and atrophy;	x		x	x				-survey theoretical issues, -performing tasks at the hospital, testing, -performing tasks independent work
MLOs 2. - to determine changes in tissues and organs with different compensatory adaptive and restorative processes, as well as in violation of blood circulation, lymph circulation and tissue fluid content; - to determine various forms of inflammatory processes in tissues, organs, as well as the reaction of the immune system;	x		x		x			-survey theoretical issues, -performing tasks at the hospital, testing, -performing tasks independent work

Pathomorphologically diagnose tumors of different origin and hemoblastosis;								
MLOs 3. - pathomorphologically determine the main changes in the organs in the pathologies of the cardiovascular, hematopoietic, nervous, respiratory systems, locomotor apparatus and skin; - pathomorphologically determine the main changes in pathologies of the digestive system, urogenital system, poisoning and diseases associated with metabolic disorders;	x	x		x	x	x		-survey theoretical issues, -performing tasks at the hospital, testing, -performing tasks independent work
MLOs 4. - pathomorphologically determine the main changes in the acute and chronic course of diseases of bacterial etiology, as well as mycosis and mycotoxicosis; - Pathomorphologically determine the main changes in diseases of viral etiology, slow infections, as well as parasitic diseases of animals.	x	x		x	x	x	x	-survey theoretical issues, -performing tasks at the hospital, testing, -performing tasks independent work

3. MODULE INDICATIVE CONTENT

Autumn semester

Topics	Distribution of hours			Learning resources	
	Directed study		Self-directed study		
	Lectures	Practicals ¹	Labs		
Topic 1. Morphological manifestation of metabolic disorders in tissues and organs. Dysproteinosis (cellular, stromal-vascular, mixed).	2			8	1, 3 - 9
Topic 2. Pathomorphology of fatty, carbohydrate and mineral dystrophies.				6	1, 3 - 9
Topic 3. Necrosis, apoptosis.				6	1, 3 - 9
Topic 4. Compensatory-adaptive and				6	1, 3 - 9

reduction processes.					
Topic 5. Disturbances of blood circulation.			2	3	1, 3 - 9
Topic 6. Disturbances of lymph circulation and the exchange of tissue fluid.				3	1, 3 - 9
Topic 7. Pathomorphological manifestation of the inflammatory process (alterative, exudative, proliferative types of inflammation).	2		2	12	1, 3 - 9
Topic 8. Immunopathomorphology. Pathomorphology of primary and secondary immunodeficiencies.				4	1, 3 - 9
Topic 9. Pathomorphology tumors and hemoblastosis.				4	1, 3 - 9
	4		4	52	

Spring semester

Topics	Distribution of hours				Learning resources
	Directed study			Self-directed study	
	Lectures	Practicals	Labs		
Topic 1. Doctrine of the disease. Pathomorphology of the cardiovascular system and hemopoietic organs.	1		1	4	1, 2. 3 - 9
Topic 2. Pathomorphology of the respiratory system.	1		1	5	1, 2. 3 - 9
Topic 3. Pathomorphology of diseases of the digestive system: inflammatory and non-inflammatory processes.				3	1, 2. 3 - 9
Topic 4. Pathomorphology of the urogenital system: inflammatory and non-inflammatory processes.				3	1, 2. 3 - 9
Topic 5. Pathology of the nervous system: inflammatory and non-inflammatory processes.				4	1, 2. 3 - 9
Topic 6. Pathomorphology of the locomotor apparatus.				3	1, 2. 3 - 9
Topic 7. Pathomorphology of skin diseases and its derivatives. Malformations				4	1, 2. 3 - 9
Topic 8. Organopathology in the case of metabolic disorders, poisoning and radiation pathology.				4	1, 2. 3 - 9
Topic 9. Pathomorphology of infectious diseases of bacterial etiology with acute and chronic course.	2		2	12	1, 2. 3 - 9
Topic 10. Pathomorphology of chlamydiosis and mycoplasmosis of animals.				12	1, 2. 3 - 9
Topic 11. Pathomorphology of diseases that cause fungi and their toxins:				6	1, 2. 3 - 9
Topic 12. Pathomorphology of			2	12	1,2. 3 - 9

infectious diseases that are caused by viruses and prions					
Topic 13. Pathomorphology of diseases caused by protozoa and helminths..				8	1,2. 3 - 9
	4		6	80	

4. TEACHING AND LEARNING METHODS

MLOs	Teaching methods (directed study)	Hours	Learning methods (self-directed study)	Hours
MLOs 1. - to determine at the microscopic level signs of a disorders of the morphology of the cell, as well as in protein dystrophies; - to determine at macro- and microscopic levels changes in cells and organs in fat, carbohydrate and mineral dystrophies, necrosis and atrophy;	Verbal: lecture, explanations in laboratory classes and consultations. Explanatory-demonstrative method - is used constantly in practical classes before working out micropreparations (slide show, educational films according to the lesson plan) and research of museum macropreparations received on sections of corpses of an animal. Analytical - all the changes found in the study of micropreparations to identify significant signs that are characteristic of a particular pathology are analyzed.	4	Partial search method - based on the materials presented in the scientific and methodological complex, the student develops a certain topic, using a textbook, manuals, Internet - resource, etc. Reproductive - used as a way to acquire practical skills in pathomorphological research on the basis of mastering the theoretical foundations of general pathological anatomy.	26
MLOs 2. - to determine changes in tissues and organs with different compensatory adaptive and restorative processes, as well as in violation of blood circulation, lymph circulation and tissue fluid content; - to determine various forms of inflammatory processes in tissues, organs, as well as the reaction of the immune system; Pathomorphologically diagnose tumors of	Verbal: lecture, explanations in laboratory classes and consultations. Explanatory-demonstrative method - is used constantly in practical classes before working out micropreparations (slide show or educational films according to the lesson plan) and research of museum macropreparations received on sections of corpses of an animal. Analytical - all the changes found in the study of micropreparations to identify significant signs that are characteristic of a	4	Partial search method - based on the materials presented in the scientific and methodological complex, the student develops a certain topic, using a textbook, manuals, Internet - resource, etc. Reproductive - used as a way to acquire practical skills in pathomorphological research on the basis of mastering the theoretical foundations of general pathological anatomy.	26

different origin and hemoblastosis;	particular pathology are analyzed.			
MLOs 3. - pathomorphologically determine the main changes in the organs in the pathologies of the cardiovascular, hematopoietic, nervous, respiratory systems, locomotor apparatus and skin; Pathomorphologically determine the main changes in pathologies of the digestive system, urogenital system, poisoning and diseases associated with metabolic disorders;	Verbal: lecture, explanations in laboratory classes and consultations. Explanatory-demonstrative method - is used constantly in practical classes before working out micropreparations (slide show, educational films according to the lesson plan) and research of museum macropreparations received on sections of corpses of an animal. Analytical - all the changes found in the study of micropreparations to identify significant signs that are characteristic of a particular pathology are analyzed.	4	Partial search method - based on the materials presented in the scientific and methodological complex, the student develops a certain topic, using a textbook, manuals, Internet - resource, etc. Reproductive - used as a way to acquire practical skills in pathomorphological research on the basis of mastering the theoretical foundations of general pathological anatomy.	30
MLOs 4. - pathomorphologically determine the main changes in the acute and chronic course of diseases of bacterial etiology, as well as mycosis and mycotoxicosis; Pathomorphologically determine the main changes in diseases of viral etiology, slow infections, as well as parasitic diseases of animals.	Verbal: lecture, explanations in laboratory classes and consultations. Explanatory-demonstrative method - is used constantly in practical classes before working out micropreparations (slide show, educational films according to the lesson plan) and research of museum macropreparations received on sections of corpses of an animal. Analytical - all the changes found in the study of micropreparations to identify significant signs that are characteristic of a particular pathology are analyzed.	6	Partial search method - based on the materials presented in the scientific and methodological complex, the student develops a certain topic, using a textbook, manuals, Internet - resource, etc. Reproductive - used as a way to acquire practical skills in pathomorphological research on the basis of mastering the theoretical foundations of general pathological anatomy.	50

5. ASSESSMENT

5.1. Diagnostic assessment

5.2. Summative assessment

5.2.1. Intended learning outcomes methods:

No	Summative assessment methods	Grades	Deadline
Autumn semester			
1.	MLOs 1 Execution of tasks in laboratory-practical classes; Thematic survey; Computer testing (multiple choice) "General Patological anatomy" in Moodle	35 marks / 35 %	According to the time-table
2.	MLOs 2 Execution of tasks in laboratory-practical classes; Thematic survey; Computer testing (multiple choice) "General Patological anatomy" in Moodle	35 marks / 35 %	According to the time-table
3	Individual work (Computer testing in Moodle, Report with a presentation on the subject of independent study of the discipline)	15 marks / 15 %	During the semester
4	Certification (Computer testing in Moodle)	15 marks / 15 %	According to the time-table
5	Sum	100/100%	
Spring semester			
1.	MLOs 3 Execution of tasks in laboratory-practical classes; Thematic survey; Computer testing (multiple choice) "Special Patological anatomy" in Moodle	20 marks / 20 %	According to the time-table
2.	MLOs 4 Execution of tasks in laboratory-practical classes; Thematic survey; Computer testing (multiple choice) "Special Patological anatomy" in Moodle	20 marks / 20 %	According to the time-table
3	Individual work (Computer testing in Moodle, Report with a presentation on the subject of independent study of the discipline)	15 marks / 15 %	During the semester
4	Certification (Computer testing in Moodle)	15 marks / 15 %	According to the time-table
5	Exam (in writing)	30 marks / 30 %	According to the time-table
6	Sum	100/100%	

5.2.2. Grading criteria

Summative assessment method	Unsatisfactory	Satisfactory	Good	Excellent
Thematic survey	<i>5 semester <20 6 semester <12 marks</i>	<i>22-25 12-15 marks</i>	<i>25-30 15-18 marks</i>	<i>35 marks 20 marks</i>
	The student can play only individual fragments of the course.	Most requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue.	All requirements of the task are fulfilled.20	All the requirements of the task have been fulfilled, creativity and thoughtfulness have been demonstrated.
Execution of tasks in laboratory-practical classes	<i>5 semester <20 6 semester <12 marks</i>	<i>22-25 12-15 marks</i>	<i>25-30 15-18 marks</i>	<i>35 20 marks</i>
	Task requirements not met	Most of the tasks are performed using based on the basic theoretical	The student has mastered the basic material, and understands and performs	The student implements the theoretical material of the discipline in the

		provisions, but the student has difficulty explaining the solution of laboratory and practical problems.	laboratory-practical tasks. Understands the main provisions that are decisive in the course, can solve similar problems by those discussed with the teacher, but allows a small number of inaccuracies.	performance of laboratory and practical work, is able to analyze and compare the results based on the knowledge, skills, practical skills acquired in this discipline
Multiple choice test	≤ 5 marks	6–9 marks	10–13 marks	14–15 marks
	The student gives the correct answer to several questions ($\leq 33\%$ of the correct answers).	The student has some knowledge provided in the program of the discipline, has the basic provisions being studied and gives the correct answer to several questions (34-59% of correct answers).	The student is generally well versed in the material, knows the basic provisions of the material, and gives the correct answer to several questions (60-89% of the correct answers).	The student demonstrates complete and solid knowledge of the study material in the amount that corresponds to the program of the discipline, correctly answers the test questions (90-100% of the correct
Design and presentation report of independently processed material	≤ 5 marks	6–9 marks	10–13 marks	14–15 marks
	The student does not have a complete understanding of the material on the discipline. The student did not perform independent study of the material.	Despite the fact that the student completed the program of the discipline, but some components are missing or insufficiently developed, the student worked passively.	Knows the basic provisions that are crucial in performing independent work. Errors in the answers are not significant.	All requirements, tasks have been fulfilled, creativity and thoughtfulness have been demonstrated.

5.3. Formative assessment

Formative exercises are designed to enable students to develop particular aspects of their learning, prior to summative assessments. Formative exercises are designed to help students use feedback and self-reflection to manage and develop their learning so that they can see how to improve their work.

No	Formative Assessment elements	Date
Autumn semester		
1.	Oral feedback after studying topics 1–3, 4-6, 9	According to the time-table
2.	Written feedback after studying topics 7-8	According to the time-table
3	Oral feedback while working on laboratory-practical tasks	During the semester
	Oral feedback from the teacher after the report with a presentation on the subject of independent study of the discipline	During the lesson
Spring semester		
1.	Oral feedback after studying topics 1–2, 3-5, 6-8, 10-11, 13	According to the time-table
2.	Written feedback after studying topics 9, 12	According to the time-table

3	Oral feedback while working on laboratory-practical tasks	During the semester
4	Oral feedback from the teacher after the report with a presentation on the subject of independent study of the discipline	During the lesson

Self-assessment can be used both an element of formative and summative assessment.

6. LEARNING RESOURCES

Methodological support

1. Ivanovska L.B., Zon I.G., Zon G.A. Pathological anatomy. Part 1: General pathological anatomy. A work-book for carrying-out the laboratory classes and individual work /L.B.Ivanovska, G.A.Zon, I.G.Zon. Sumy, 2019. 63 p.
2. Ivanovska L.B., Zon I.G., Zon G.A Morbid anatomy: part II. Special morbid anatomy: a workbook for laboratory and individual studies. Sumy, 2021. 72 p.

Basic literature

3. M. Donald Mc Gavin, James F. Zachary **Pathologic basis** of veterinary disease; forth edition. [http://evolve.elsevier.com/McGavin/vetdesiase]. Printed in Chine, 2010. - 1476 p.
4. J.E. van Dijk, E. Gruys **Color Atlas** of Veterinary Pathology; second edition. Spain: Elsevier Limited, 2007. - 200 p.
5. James F. Zachary, M. Donald Mc Gavin. Pathologic basis of veterinary disease; fifth edition. Printed in Chine, 2012. 1322 p.
6. Paul Cohrs Text book of the special pathological anatomy of domestic animals. Pergamon Press, 1966. 1026 p.
7. Chauhan R.S. Illustrated Veterinary Pathology (General Systemic Pathology). International Book Distribution Co., 2007. 306 p.
8. Chauhan R.S. Text Book of Veterinary Pathology. IBDC Publishers, 2010. 652 p.
9. Grain F. Greene **Infectious** Diseases of the Dog and Cat; 4th edition (1990). USA, publ. 2011.– 1376 p.

Informational resources

1. http://vetpathology.lviv.ua/biblioteka_studenta.html
2. <http://uk.wikipedia.org/wiki/>
3. www.e-reading.club/book.php?book=99766
4. http://www.vetkzn.ru/literatura/veterinarnye_uchebniki/
5. <http://evolve.elsevier.com/McGavin/vetdesiase>