#### 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 and autopsy <u>compulsory</u>

(compulsory/optional)

Implemented in the "Veterinary medicine" Academic Program

Area of specialization 211 - Veterinary medicine

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

Sumy-2023

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

Module syllabus agreed at the of Virology, Pathanatomy and Poultry	Minutes № 15 dated May 19. 2023
Diseases Department	Head
meeting	Department, professor (Petrov RV.)

Approved by:

Guarantor of the Academic program

Dean of the Faculty

Syllabus review (attached) is provided by : (

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## Syllabus review data:

The ecodomic	The Acadomic	Changes revised and approved							
year in which changes are made changes description		Minutes No and date of the department meeting	Head of Department	Guarantor of the Academic program					

## **1. MODULE OVERVIEW**

1.	Title	Pathological anatomy and autopsy							
2.	Faculty/Department	Faculty of Veterinary Medicine, Virology, Pathanatomy and Poultry Diseases after Prof. I. Panikar Department							
3.	Type (compulsory or optional)	compulsory	compulsory						
4.	Program(s) to which	OP Veterina	ry Medicine						
	module is attached (to	Is the basis f	or the study of co	omparative path	omorphology and				
	be filled in for	forensic vete	erinary examinati	ion by experts.					
	compulsory types)								
5.	Module can be								
	suggested for (to be								
	filled in for optional								
6	types)	7							
0.	Qualifications	/							
	Framework								
7.	Semester and duration	7 and 8 seme	esters						
	of module								
8.	ECTS credits number	10							
9.	Total workload and		Directed study		Self-directed study				
	time allotment	Lectures	Practicals	Labs	0.0.11.40				
		14/14		16/24	90/142				
10.	Language of instruction	English							
11.	Module leader	Associate Pr	ofessor of Virol	logy, Pathanator	my and Poultry Diseases				
		Department,	c. vet. med. Ivar	novskaya L.B.					
12.	Module leader contact	FVM, offic	ce 15 or 17	7, 0965384585	5, lusj0951@gmail.com				
10	information	consultation	s every Friday fr	om 14-15 to 15-	-30				
13.	General description of	Among the	leading special	disciplines in t	the system of veterinary				
	component Module	education an	t studies the abn	ormal structure	of the animal and human				
	description	body that	occur during	the disease	Pathological anatomy				
	description	(pathologica	l morphology, g	r. Morphe - for	rm) is an integral part of				
		pathology -	a science that st	udies the whole	complex of problems of				
		the patient	s body. Path	ological anate	omy studies not only				
		pathological	processes arisin	g from the infl	uence of disease-causing				
		factors, but	also the processe	es of recovery, a	adaptation, compensation				
		for lost strue	ctures and funct	ions, immunolo	gical processes, ie those				
		complex rea	ctions of the bo	dy that are an	hed at protecting it from				
		disease. Aut	opsy - as a disci	pline lays the fo	oundations of knowledge				
		provides kno	wledge of morr	pathological and o	clinical manifestations of				
		diseases at	all stages of th	eir developme	t summarizes skills of				
		clinical and	anatomical ana	alvsis. svnthetig	analysis of diagnostic				
		signs and th	neir correct inter	rpretation in ca	usal relations, which is				
		necessary for	r further professi	onal activity.	,				
14.	Module aim	The purpose	of the course: i	s to train a vete	erinarian in pathology, to				
		provide a cl	ear idea of the	material basis of	of the disease, using the				
		achievement	s of general biol	logical (anatom	y, 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)	<ol> <li>The educational component is based on the study of normal animal anatomy, cytology, histology, embryology, biochemistry, normal and pathological physiology, virology.</li> <li>The educational component is the basis for the study of veterinary examination, epizootology, parasitology, comparative pathomorphology and forensic veterinary examination.</li> </ol>
16.	The policy of academic integrity	Applicants are explained the value of acquiring new Applicants are explained the value of acquiring new integrity knowledge; value and functions of academic integrity; report the inadmissibility of plagiarism, encourage independent performance of educational tasks, correct reference to sources of information in the case of borrowing scientific materials. Write-offs during tests and exams are prohibited (including the use of mobile devices). Papers should have correct textual references to the literature used. For violation of academic integrity, students may be held subject to the following academic liability: Academic plagiarism - grade 0, re-completion of the task. Academic fraud (writing off, deception, publishing someone's work for their own) - cancellation of points; re-assessment, re-execution of non-independently performed work with new source data; Use of electronic devices during the final control of knowledge - suspension from work, grade 0, re-passing the final control
17	Link in Moodle	7semesterhttps://cdn.snau.edu.ua/moodle/enrol/index.php?id=4371https://cdn.snau.edu.ua/moodle/enrol/index.php?id=45008semesterhttps://cdn.snau.edu.ua/moodle/enrol/index.php?id=2924

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

MLOs:		How						
On successful	PLOs	PLOs	PLOs	PLOs	PLOs	PLOs	PLOs10	assessed
completion of the	1	2	3	5	6	9		
module the learner								
will be able to:								
			7 sen	nester				
MLOs 1 to	х		х	Х				-survey
determine at the								theoretical
microscopic level								issues,
signs of a disorders of								-performing
the morphology of								tasks at the
the cell, as well as in								hospital,
protein dystrophies;								testing,
- to determine at								-performing
macro- and								tasks

microscopic levels								independent
changes in cells and								work
organs in fat,								
carbohydrate and								
mineral dystrophies.								
necrosis and atrophy:								
$\frac{MLOs}{2} - to$	x		x		x			-survey
determine changes in								theoretical
tissues and organs								issues
with different								-performing
compensatory								tasks at the
adaptive								hospital
restorative processes								testing
as well as in violation								norforming
as well as in violation								-performing
of blood circulation,								tasks
lymph circulation and								independent
tissue fluid content;								work
- to determine various								
forms of								
inflammatory								
processes in tissues,								
organs, as well as the								
reaction of the								
immune system;								
Pathomorphologically								
diagnose tumors of								
different origin and								
hemoblastosis;								
MLOs 3	Х	Х		х	х	Х		-survey
pathomorphologically								theoretical
determine the main								issues.
changes in the organs								-performing
in the nathologies of								tasks at the
the cardiovascular								hospital
hematonoietic								testing
nervous respiratory								-performing
systems locomotor								-periorning
apparatus and skin:								indopondont
apparatus and skin,								work
- nathomorphologically								WUIK
datarming the main								
abangaa in								
nothologies of the								
pathologies of the								
aigestive system,								
urogenital system,								
poisoning and								
diseases associated								
with metabolic								
disorders;								
MLOs 4	Х	Х		х	х	х	х	-survey
pathomorphologically								theoretical
determine the main								issues.

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.		8	semest	-performing tasks at the hospital, testing, -performing tasks independent work
MLOs <sup>.</sup>		PL Oc	~ • • • • • • • •	How assessed
On successful completion of the module the learner will be able to:	PLOs 1	PLOs 2	PLOs 3	
MLOs 1. To know: safety precautions at autopsy and the basics of diagnostic and forensic veterinary autopsy; the value of pathological autopsy of animal carcasses; list of diseases for which it is forbidden to perform an autopsy; the importance of postmortem pathological diagnosis in the fight against animal diseases; structure and logic of construction of pathological diagnosis, its components, variants of the main disease. Establish a pathological diagnosis, make a differential diagnosis of diseases. Know the topographic location of the internal organs of different animals. Identify the underlying disease, complications of the underlying disease, comorbidities	X	X		<ul> <li>Oral control (participation in a discussion on the topic of the lecture)</li> <li>Written control (performance of tasks on independent work, independent study of the topic as a whole or individual issues of independent work (test results, preparation of presentations, presentation report of self- developed material))</li> <li>Laboratory-practical control (performance of tasks on laboratory works)</li> </ul>
MLOs 2. Detect pathological changes in the organs of animals in diseases of various etiologies. Recognize postmortem changes during autopsy. Distinguish the	X	X	X	<ul> <li>Oral control (participation in a discussion on the topic of the lecture)</li> <li>Written control (performance of tasks on independent work, independent study of the topic as a whole or individual issues of independent work (test results, preparation of</li> </ul>

purpose of pathological tools during section work. Organize the necessary level of individual safety when working with corpse material. Have methods of disposal and disposal of cadaveric material.				presentations, presentation report of self- developed material)) - Laboratory-practical control (performance of tasks on laboratory works)
MLOS 5. Know the rules of selection of pathological material. Analyze sectional findings. Prepare autopsy documentation Use knowledge to build a pathological and anatomical diagnosis. Capture, restore color, preserve and install the macrodrug.	X	x	x	<ul> <li>Oral control (participation in a discussion on the topic of the lecture)</li> <li>Written control (performance of tasks on independent work, independent study of the topic as a whole or individual issues of independent work (test results, preparation of presentations, presentation report of self- developed material))</li> <li>Laboratory-practical control (performance of tasks on laboratory works)</li> </ul>
MLOs 4. Know the basic diseases of the heart and blood vessels, hematopoietic organs. Know the main diseases of the respiratory, digestive, genitourinary and nervous systems. Know the main infectious diseases of bacterial and viral etiology. Be able to recognize macroscopic and microscopic signs of these diseases. Understand their etiology and pathogenesis. Distinguish the signs of these diseases from other pathological processes.	X	x	x	<ul> <li>Oral control (participation in a discussion on the topic of the lecture)</li> <li>Written control (performance of tasks on independent work, independent study of the topic as a whole or individual issues of independent work (test results, preparation of presentations, presentation report of self- developed material))</li> <li>Laboratory-practical control (performance of tasks on laboratory works)</li> </ul>
MLOs 5. Know the essence of death, its types and posthumous changes. Be able to distinguish postmortem changes from lifelong pathological processes. Understand the object and purpose of the autopsy. Use skills to organize and perform an autopsy. Master the technique and features of autopsy of different species of animals. Maintain appropriate pathological documentation.	X	X	X	<ul> <li>Oral control (participation in a discussion on the topic of the lecture)</li> <li>Written control (performance of tasks on independent work, independent study of the topic as a whole or individual issues of independent work (test results, preparation of presentations, presentation report of self- developed material))</li> <li>Laboratory-practical control (performance of tasks on laboratory works)</li> <li>Final control (solving tests)</li> </ul>
MLOs 6. To study the changes of nerve cells in the defeat of the nervous system. Know the	Х	Х	Х	<ul><li>Oral control (participation in a discussion on the topic of the lecture)</li><li>Laboratory-practical control (performance)</li></ul>

pathomorphological diagnosis	of tasks on laboratory works)
of diseases of the lungs, heart,	- Written control (performance of tasks on
spleen, liver, kidneys, uterus,	independent work, independent elaboration
gastrointestinal tract.	of a theme as a whole or separate questions
Know the etiology of tumors,	of independent work (results of testing,
stages of carcinogenesis, the	preparation of presentations, presentation
range of tumors, the main	report of independently developed material))
properties of tumor growth.	
Understand the principles of	
classification of tumors.	
To study the morphological	
characteristics of tumors and	
tumor-like lesions of the	
breast, skin, testicles and	
ovaries	

#### **3. MODULE INDICATIVE CONTENT**

	Ι	Distribution	Learning resources		
Topics	Directed study			Self-	
				directed	
				study	
	Lectur	Practica	Lab		
	es	ls <sup>1</sup>	S		
	7 s	semester	I		Γ
<b>Topic1.</b> Morphological	2		2	6	1-5, 8 - 10
manifestation of metabolic					
disorders in tissues and organs.					
Dysproteinosis (cellular, stromal-					
vascular, mixed).					
Topic 2. Pathomorphology of fatty,			2	6	1-5, 8 - 10
carbohydrate and mineral					
dystrophies.					
<b>Topic 3</b> . Necrosis, apoptosis.				4	1-5, 8 - 10
Topic 4. Compensatory-adaptive				2	1-5, 8 - 10
and reduction processes.					
<b>Topic 5.</b> Disturbances of blood			2	2	1-5, 8 - 10
circulation.					
Topic 6. Disturbances of lymph				2	1-5, 8 - 10
circulation and the exchange of					
tissue fluid.					
<b>Topic 7.</b> Pathomorphological	2		2	8	1-5, 8 - 10
manifestation of the inflammatory					
process (alterative, exudative,					
proliferative types of					
inflammation).					
Topic 8.				2	1-5, 8 - 10
Immunopathomorphology.					

Pathomorphology of primary and					
secondary immunodeficiencies.					
Topic 9. Pathomorphology tumors				2	1-5, 8 - 10
and hemoblastosis.					
Topic 10. Doctrine of the disease.	1		1	2	1-5, 8 - 10
Pathomorphology of the					
cardiovascular system and					
hemopoietic organs.					
Topic 11. Pathomorphology of the	1		1	4	1-5, 8 - 10
respiratory system.					
Topic 12. Pathomorphology of	1			2	1-5, 8 - 10
diseases of the digestive system:					
inflammatory and non-					
inflammatory processes.					
Topic 13. Pathomorphology of the	1			2	1-5, 8 - 10
urogenital system: inflammatory					
and non-inflammatory processes.					
Topic 14. Pathology of the nervous	1			2	1-5, 8 - 10
system: inflammatory and non-					,
inflammatory processes.					
Topic15. Pathomorphology of the	1			2	1-5, 8 - 10
locomotor apparatus.					,
Topic 16. Pathomorphology of skin				2	1-5, 8 - 10
diseases and its derivatives.					,
Malformations					
Topic 17. Organopathology in the				2	1-5, 8 - 10
case of metabolic disorders,					,
poisoning and radiation pathology.					
Topic 18 Pathomorphology of	2		2	10	1-5, 8 - 10
infectious diseases of bacterial					,
etiology with acute and chronic					
course.					
Topic 19. Pathomorphology of				6	1-5, 8 - 10
chlamydiosis and mycoplasmosis					
of animals.					
Topic 20. Pathomorphology of	2			6	1-5, 8 - 10
diseases that cause fungi and their					,
toxins:					
Topic 21. Pathomorphology of			2	10	1-5, 8 - 10
infectious diseases that are caused					
by viruses and prions					
Topic 22. Pathomorphology of			2	6	1-5, 8 - 10
diseases caused by protozoa and					
helminths					
	14		16	90	
	8 s	semester			
Topic 1. Diagnosis and forensic			7		3, 5, 6, 7, 11
autopsy of animal carcasses. Safety	2			1	
precautions when dissection	2			+	
organs.					
<b>Topic 2.</b> The value of pathological	2			4	3, 5, 6, 7, 11

autopsy of animal carcasses for				
verification of lifelong diagnosis.				
Topic 3. Pathological changes in				3, 5, 6, 7, 11
the organs of animals in diseases of	2	2	5	
various etiologies				
Topic 4. Rules of selection of			-	3, 5, 6, 7, 11
pathological material	1	2	5	
<b>Topic 5.</b> Methods of disposal and	1		4	3, 5, 6, 7, 11
disposal of cadaveric material.	1			
<b>Topic 6.</b> Early and late cadaveric				3, 5, 6, 7, 11
signs. Organization of autopsy,	1		5	
veterinary and sanitary	1			
requirements for the autopsy site.				
<b>Topic</b> 7. Appointment of			2	3, 5, 6, 7, 11
pathological tools during section	1		2	
work				
Topic 8. Technique and features of			_	3, 5, 6, 7, 11
pathological autopsy of corpses of	2		5	
different species of animals.				
Topic 9. Features of pathological			_	3, 5, 6, 7, 11
and anatomical examination of	2	2	6	
various organs				
<b>Topic 10.</b> Features of autopsy of			6	3, 5, 6, 7, 11
ungulates and cattle			0	
<b>Topic 11.</b> Features of autopsy of			6	3, 5, 6, 7, 11
pigs and carnivores			0	
<b>Topic 12.</b> Features of autopsy of				3, 5, 6, 7, 11
poultry carcasses. Features of		2	6	, , , , ,
autopsy of small domestic and		2	0	
laboratory animals				
<b>Topic</b> 13. Compilation of		-	10	3, 5, 6, 7, 11
pathoanatomical documentation.		3	- •	-,-,-,-,
<b>Topic 14.</b> The concept of			6	3, 5, 6, 7, 11
pathological diagnosis. Special		2	0	0,0,0,1,11
pathomorphology		_		
<b>Topic 15.</b> Features of pathological			8	3, 5, 6, 7, 11
changes in diseases of the			0	5, 5, 6, 7, 11
cardiovascular and hematopoietic		1		
systems				
<b>Topic 16</b> Features of pathological				3 5 6 7 11
changes in diseases of the			o	5, 5, 6, 7, 11
respiratory and the digestive		1	0	
systems				
Tonic 17 Features of pathological			6	3 5 6 7 11
changes in diseases of the		1	0	5, 5, 0, 7, 11
changes in diseases of the		1		
Topic 18 Organ pathology in acuto			12	3 5 6 7 11
and chronic bacterial discass		2	12	5, 5, 0, 7, 11
Topic 10 Differential pathological			10	2 5 6 7 11
diagnosis of animal diagasas		2	12	3, 3, 0, 7, 11
ulagnosis of annual diseases.				

<b>Topic 20.</b> Organ pathology in infectious diseases of bacterial and viral etiology.		2	12	3, 5, 6, 7, 11
<b>Topic 21.</b> Pathomorphological diagnosis of non-communicable animal diseases. Pathomorphological diagnosis of tumors		1	6	3, 5, 6, 7, 11
<b>Topic 22.</b> Technique of making museum preparations.		1	4	3, 5, 6, 7, 11
Total	14	24	142	

## 4. TEACHING AND LEARNING METHODS

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

organs, as well as the reaction of the immune system; Pathomorphologically dignose tumors of different origin and hemolastosis;Analytical - all the changes found in the study dientify significant signs that are characteristic of a pathomorphologically determine the main changes in the organs systems, locomor apathologies of the changes in the main changes in the fath recurce diver analytical - all the changes found in the study of micropreparations to idiscutse system, urogenital system, poisoning and discusses and consultations.A HPartial search method - basied on the materials presented in the scientific and methodologically determine the main changes found in the study of micropreparations to idiscutse system, urogenital system, poisoning and discusse of bacterial mycotoxicosis;Analytical - all the changes found in the study of micropreparations to identify significant signs that are characteristic of a parastic diseases of aratical classes before working out microprepar- rations (slide show, equations in laboratory classes and consultations.A Partial search method - based on the materials presented in the scientific and methodologically anatows received on sections toin sciencived on sections toin scienciv	processes in tissues.	of corpses of an animal.		theoretical foundations of	
reaction of the changes found in the study of micropreparations to different origin and particular pathology are analyzed. WLOS 3 particular pathology are pathomorphologically determine the main changes in the organ in laboratory classes and consultations. Explanators in laboratory classes and consultations. Explanatory in the pathologies of the cardiovascular, periodical cardiovascular, periodical cardiovascular, particular pathology in the second micropreparations to identify significant signs that are characteristic of a particular pathology is and particular pathology and digestive system, and corpused of a national, urogenital system, protectical classes before to identify significant signs that are characteristic of a particular pathology are analyzed. WLOS 4 pathomorphologically determine the main changes in the study of micropreparations to identify significant signs that are characteristic of a particular pathology are analyzed. State and consultations in laboratory classes and consultations. Explanatory the second state characteristic of a particular pathology are analyzed. State and consultations in laboratory classes and consultations. Explanatory analyzed. State are characteristic of a particular pathology are analyzed. State are characteristic of a particular pathology are analyzed. State are characteristic of a particular pathology are analyzed. State are characteristic of a particular pathology are analyzed. State are characteristic of a particular pathology are analyzed. State are characteristic of a particular pathology are analyzed. State are characteristic of a particular pathology are analyzed. State are characteristic of a particular pathology are analyzed. State are characteristic of a particular pathology are analyzed. State are characteristic of a particular pathology are analyzed. State are characteristic of a particular pathology are analyzed. State are characteristic of a particular pathology are analyzed. State are characteristic of a particular pathology are analyzed. State a	organs, as well as the	Analytical - all the		general pathological	
Annon Stateof micropreparations to identify significant signs tiat are characteristic of a particular pathology are analyzed.Annon State particular pathology are analyzed.MLOS 3.Verbal: lecture, explanatory- classes and consultations. Explanatory- determine the main determine the main explanatory- classes and consultations. Explanatory- due constantly in practical classes before working out microprepa- raystems, locomotor apparatus and skin. explanatory- duetermine the main pathologics of the determine the main pathologics of the digestive system, urogenital system, alcostative method - is used constantly in plan) and research of museum macroprepar- rayaritical - all the disorders; that are characteristic of a particular pathology are analyzed.Partial search method - based on the materials practical classes before working out microprepa- raystems, locomotor apparatus and skin. educational films according to the lesson digestive system, urogenital system, discases associated with metabolic discases associated with metabolic discases associated with metabolic discases of bacterial explanatory- demonstrative method - is used constantly in practical classes before working out microprepara- rations (slide show, erastical system, changes in the acute and trance characteristic of a particular pathology are analyzed.A Partial search method - based on the materials50MLOS 4 pathomorphologically classes and consultations. Explanatory- demonstrative method - is used constantly in practical classes before working out microprepar- rations (slide show, erations (slide show, erations (slide show, erations (slide show, era	reaction of the	changes found in the study		anatomy	
Immuto System, and System, and System, and System, appartus and skin;       Operation of the second system of the second system, apparatus and system, apparatusim apparatus and system, apparatus and sys	immune system.	of micropreparations to		unatomy.	
IntroductionIntermolations plant pathonorphologically determine the main charges in the organs in the pathologies of the cardiovascular, pervous, respiratory systems, locomotor aparatus and skin, educational films determine the main charges in pathomorphologically determine the main charges in the organs in the pathologies of the digesters explanatory- demonstrative method - is used constantly in practical classes hefore pathomorphologically determine the main charges in the arabioaxes and consultations. educational films determine the main charges in the at or characteristic of a pathologies of the disorders;Verbal: lecture, that are characteristic of a pathologically determine the main charges in the acute disorders;Partial search method - based on the materials30MLOS 4 pathomorphologically determine the main charges for the disorders;Verbal: lecture, explanations in laboratory classes and consultations. that are characteristic of a particular pathology are analyzed.6Partial search method - based on the materialsMLOS 4 pathologically determine the main charges in the acute charges in the acuterial ettermine the main charges in the acuterial charges in the acuterial charges in diseases of patricular pathology are analyzed.6Partial search method - based on the materials50MLOS 4 pathologically determine the main charges in diseases of animeds, intervere charges in diseases of animals.Verbal: lecture, explanatory- demonstrative method - is used constantly in practical classes before working out microprepar- traitions (slide show, ecording the scone traition (slide	Pathomorphologically	identify significant signs			
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that are characteristic of a particular pathology are analyzed.		identify significant signs			
particular pathology are analyzed.		that are characteristic of a			
analyzed.		particular pathology are			
		analyzed.			

	8 semester					
MLOs 1	Survey of students with	5	Independent elaboration	16		
	explanation of key		of materials on the topic.			
	questions of the subject,		Memorization of			
	answers to students'		theoretical material,			
	questions, mastery of		observation.			
	practical skills, methods		On the basis of the			
	of laboratory work.		studied and processed			
	Interactive discussion of		material of registration of			
	the topic in the form of a		the synopsis on			
	discussion. including		independent work			
	information presented in		Elaboration of the			
	diagrams and figures, with		relevant sections of the			
	a mandatory visit to the		autopsy protocol			
	autopsy		(according to the real			
	Solving clinical and		case): drawing up a			
	situational problems (the		pathological-anatomical			
	concept of pathological		diagnosis registration of			
	diagnosis its components		a clinical-nathological-			
	variants of the underlying		anatomical epicriz about			
	disease)		the case			
	Carrying out of autopsy		Acquaintance with the			
	with the subsequent		information of official			
	detailed analysis of a		sites on a subject of			
	concrete case discussion		employment or a separate			
	of the basic clinical data		question			
	filling of the		question.			
	corresponding part of the					
	protocol of pathological					
	research					
ML Os 2	Survey of students with	5	Independent elaboration	18		
WILOS 2	explanation of key	5	of materials on the topic	10		
	questions of the subject		Memorization of			
	answers to students'		theoretical material			
	questions mastery of		observation			
	practical skills methods		On the basis of the			
	of laboratory work		studied and processed			
	Interactive discussion of		material of registration of			
	the topic in the form of a		the synopsis on			
	discussion including		independent work			
	information presented in		Elaboration of the			
	diagrams and figures with		relevant sections of the			
	a mandatory visit to the		autopsy protocol			
	a manuatory visit to the		(according to the real			
	Solving clinical and		(according to the feat			
	situational problems (the		nathological-anatomical			
	concept of pathological		diagnosis registration of			
	diagnosis its components		a clinical nathological			
	variants of the underlying		a chincal-pathological-			
	disease)		anatonnear epicitisis			
	Carrying out of autopsy		Acquaintance with the			
	with the subsequent		information of official			
	with the subsequent		mormation of official			

		1		
	detailed analysis of a concrete case, discussion of the basic clinical data, filling of the corresponding part of the protocol of pathological research.		sites on a subject of employment or a separate question.	
MLOs 3	Survey of students with explanation of key questions of the subject, answers to students' questions, mastery of practical skills, methods of laboratory work. Interactive discussion of the topic in the form of a discussion, including information presented in diagrams and figures, with a mandatory visit to the autopsy Solving clinical and situational problems (the concept of pathological diagnosis, its components, variants of the underlying disease). Carrying out of autopsy with the subsequent detailed analysis of a concrete case, discussion of the basic clinical data, filling of the protocol of pathological research.	5	Independent elaboration of materials on the topic. Memorization of theoretical material, observation. On the basis of the studied and processed material of registration of the synopsis on independent work Elaboration of the relevant sections of the autopsy protocol (according to the real case); drawing up a pathological-anatomical diagnosis, registration of a clinical-pathological- anatomical epicrisis about the case Acquaintance with the information of official sites on a subject of employment or a separate question.	18
MLOs 4	Survey of students with explanation of key questions of the subject, answers to students' questions, mastery of practical skills, methods of laboratory work. Interactive discussion of the topic in the form of a discussion, including information presented in diagrams and figures, with a mandatory visit to the autopsy Solving clinical and	5	Independent processing of materials on the topic. Memorization of theoretical material, observation. On the basis of the studied and processed material Fr.drawing up a synopsis of independent work Elaboration of the relevant sections of the autopsy protocol (according to the real case); drawing up a pathological-anatomical	20

	situational problems (the		diagnosis, registration of	
	concept of pathological		a clinical-pathological-	
	diagnosis, its components,		anatomical epicrisis	
	variants of the underlying		about the case	
	disease).		Acquaintance with the	
	Carrying out of autopsy		information of official	
	with the subsequent		sites on a subject of	
	detailed analysis of a		employment or a separate	
	concrete case, discussion		auestion.	
	of the basic clinical data.		1	
	filling of the			
	corresponding part of the			
	protocol of pathological			
	research.			
MLOs 5	Survey of students with	5	Independent processing	24
	explanation of key		of materials on the topic.	
	questions		Memorization of	
	of the subject, answers to		theoretical material,	
	students' questions,		observation.	
	mastery of practical skills,		On the basis of the	
	methods of laboratory		studied and processed	
	work.		material Fr.drawing up a	
	Interactive discussion of		synopsis of independent	
	the topic in the form of a		work	
	discussion, including		Elaboration of the	
	information presented in		relevant sections of the	
	diagrams and figures, with		autopsy protocol	
	a mandatory visit to the		(according to the real	
	autopsy		case); drawing up a	
	Solving clinical and		pathological-anatomical	
	situational problems (the		diagnosis, registration of	
	concept of pathological		a clinical-pathological-	
	diagnosis, its components,		anatomical epicrisis	
	variants of the underlying		about the case	
	disease).		Acquaintance with the	
	Carrying out of autopsy		information of official	
	with the subsequent		sites on a subject of	
	detailed analysis of a		employment or a separate	
	concrete case, discussion		question.	
	of the basic clinical data,			
	filling of the			
	corresponding part of the			
	protocol of pathological			
	research.			
MLOs 5	Survey of students with	5	Independent processing	24
	explanation of key		of materials on the topic.	
	questions		Memorization of	
	of the subject, answers to		theoretical material,	
	students questions,		observation.	
	mastery of practical skills,		Un the basis of the	
	methods of laboratory		studied and processed	
	WORK.		material Fr.drawing up a	

Interactive discussion of	synopsis of independent
the topic in the form of a	work
discussion, including	Elaboration of the
information presented in	relevant sections of the
diagrams and figures, with	autopsy protocol
a mandatory visit to the	(according to the real
autopsy	case); drawing up a
Solving clinical and	pathological-anatomical
situational problems (the	diagnosis, registration of
concept of pathological	a clinical-pathological-
diagnosis, its components,	anatomical epicrisis
variants of the underlying	about the case
disease).	Acquaintance with the
Carrying out of autopsy	information of official
with the subsequent	sites on a subject of
detailed analysis of a	employment or a separate
concrete case, discussion	question.
of the basic clinical data,	
filling of the	
corresponding part of the	
protocol of pathological	
research.	

### 5. ASSESSMENT

- 5.1. Diagnostic assessment
- 5.2. Summative assessment

## 5.2.1. Intended learning outcomes methods:

	7 semester							
N⁰	Summative assessment methods	Grades	Deadline					
1.	Oral control (participation in a discussion on the topic of the lecture).	30 points / 30%	Weekly					
2.	Written control (performance of tasks on independent work). Solving situational problems.	15 points / 15%	According to the schedule					
3.	Laboratory and practical control (performance of tasks in laboratory work) Work with animals.	40 points / 40%	According to the schedule of the labs					
4.	Final control (solving tests).	15 points / 15%	According to the schedule of modules					

## 8 semester

N⁰	Summative assessment methods	Grades	Deadline
1	Oral control (participation in a discussion on the topic of the laboratory work).	15 points / 15%	Weekly
2.	Written control (performance of tasks on independent work). Solving situational problems.	15 points / 15%	According to the schedule
3.	Laboratory and practical control (performance of tasks in laboratory work) Work with animals.	25 points / 25%	According to the labs schedule

4.	Oral control (participation in a	15 points / 15%	According to the schedule of
	discussion on the topic of the lecture).		modules
5.	Examination (writing test)	30 points / 30%	According to the examination
			schedule

## 5.2.2. Grading criteria

Summative	Unsatisfactory	Satisfactory	Good	Excellent
assessment				
method	5	22.25	25.20	25
Thematic survey	5 semester $< 20$	$\frac{22-23}{12,15}$	25-30 15-18 marks	35 marks
	marks	12-13 marks	1 <i>3-</i> 10 marks	20 marks
	The student can	Most	All	All the
	play only	requirements are	requirements of	requirements of
	individual	met, but some	the task are	the task have been
	fragments of the	components are	fulfilled.20	fulfilled,
	course.	missing or		creativity and
		insufficiently		thoughtfulness
		disclosed, there is		have been
		other approaches		demonstrated.
		to the issue		
Execution of	5 semester <20	22-25	25-30	35
tasks in	6 semester <12	12-15 marks	15-18 marks	20 marks
laboratory-	marks			
practical classes	Task requirements	Most of the tasks	The student has	The student
	not met	are performed	mastered the	implements the
		using based on	basic material,	theoretical
		the basic	and understands	material of the
		theoretical	and performs	discipline in the
		provisions, but	laboratory-	performance of
		difficulty	Understands the	proctical work is
		explaining the	main provisions	able to analyze
		solution of	that are decisive	and compare the
		laboratory and	in the course.	results based on
		practical	can solve similar	the knowledge.
		problems.	problems by	skills, practical
		1	those discussed	skills acquired in
			with the teacher,	this discipline
			but allows a	
			small number of	
			inaccuracies.	
Multiple choice	$\leq 5 marks$	6–9 marks	10–13 marks	14–15 marks
test	The student gives	The student has	I he student is	I he student
	to several	some knowledge	yenerally well	complete and
	(< 33%)	provided in the	material knows	solid knowledge
	of the correct	discipline has the	the basic	of the study
	answers).	basic provisions	provisions of the	material in the

		being studied and gives the correct answer to several questions (34- 59% of correct answers).	material, and gives the correct answer to several questions (60- 89% of the correct answers).	amount that corresponds to the program of the discipline, correctly answers the test questions (90-100% of the correct
Design and	$\leq$ 5 marks	6–9 marks	10–13 marks	14–15 marks
presentation report of independently processed material	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.

N⁰	Formative Assessment elements	Date
1	Oral interview of students with explanation of key	During the lesson according to
	questions of the subject, answers to students' questions,	the schedule
	mastering practical skills (methods of laboratory work)	
2	Oral feedback from the teacher while working on solving	During the lesson according to
	clinical and situational problems	the schedule
3	Written feedback from the teacher after checking the	Within a week, after execution
	syllabus for self-study of the discipline.	
Self-assessment can be used as an element of summative assessment and formative		

Self-assessment can be used as an element of summative assessment and formative 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 (2010). **Pathologic basis** of veterinary disease; forth edition. [http://evolve.elsevier.com/McGavin/vetdesiase]. Printed in Chine.1476 p.

4. J.E. van Dijk, E. Gruys (2007). Color Atlas of Veterinary Pathology; 2nd edition. Spain: Elsevier Limited, 200 p.

5. James F. Zachary, M. Donald Mc Gavin. Pathologic basis of veterinary disease; fifth edition. Printed in Chine, 2012. 1322 p.

6. James L. Voss (2002). Dairy Cattle Necropsy Manual. Copyright: Colorado State University. 102 p.

7. John M. King et al (2013). The Necropsy Book. A Guide for Veterinary Students. 248 p.

8. Chauhan R.S. (2007). Illustrated Veterinary Pathology (General Systemic Pathology). International Book Distribution Co. 306 p.

9. Chauhan R.S. (2010). Text Book of Veterinary Pathology. IBDC Publishers. 652 p.

10. Grain F. Greene (2011). Infectious Diseases of the Dog and Cat; 4<sup>th</sup> edition. USA. 1376 p.

11. Zon G.A. & Ivanovska L.B. (2018). Pathological autopsy of animal cadavers: Study guide. – [Third edition, revised and supplemented Sumy: VVP "Mriya-1". 336 p. [Ukrainian]

#### Informational resources

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