

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**

**compulsory**

**(compulsory/optional)**

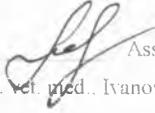
**Implemented in the “Veterinary medicine” Academic Program**

**Area of specialization 211 - Veterinary medicine**

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

**Sumy-2023**

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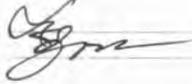
Author:  Associate Professor of Virology, Pathanatomy and Poultry Diseases  
Department, c. vet. med., Ivanovskaya I.B.

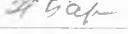
Module syllabus agreed at the of Virology, Pathanatomy and Poultry Diseases Department meeting	Minutes № 15 dated Max 19. 2023
	Head Department, professor  (Petrov R.V.)

**Approved by:**

Guarantor of the Academic program  (Petrov R.V.)

Dean of the Faculty  (Nechiporenko A.L.)

Syllabus review (attached) is provided by:   (Зонд. А.)

Representative of the Department of Education Quality assurance, licensing and accreditation  (N. Baranik)

Registered in electronic data base 17.06 2023

**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

## 1. MODULE OVERVIEW

1.	Title	Pathological anatomy and autopsy		
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	7 and 8 semesters		
8.	ECTS credits number	10		
9.	Total workload and time allotment	Directed study		Self-directed study
		Lectures	Practicals	Labs
		<b>14/14</b>		<b>16/24</b>
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.	General description of the educational component Module description	Among the leading special disciplines in the system of veterinary education an important place is occupied by pathological anatomy (- 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. Autopsy - as a discipline lays the foundations of knowledge about the organization of pathological service and its purpose, provides knowledge of morphological and clinical manifestations of diseases at all stages of their development, summarizes skills of clinical and anatomical analysis, synthetic analysis of diagnostic signs and their correct interpretation in causal relations, which is necessary for further professional activity.		
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	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	7semester <a href="https://cdn.snau.edu.ua/moodle/enrol/index.php?id=4371">https://cdn.snau.edu.ua/moodle/enrol/index.php?id=4371</a> <a href="https://cdn.snau.edu.ua/moodle/enrol/index.php?id=4500">https://cdn.snau.edu.ua/moodle/enrol/index.php?id=4500</a> 8semester <a href="https://cdn.snau.edu.ua/moodle/enrol/index.php?id=2924">https://cdn.snau.edu.ua/moodle/enrol/index.php?id=2924</a>

## 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	
<b>7 semester</b>								
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	x		x	x				-survey theoretical issues, -performing tasks at the hospital, testing, -performing tasks

microscopic levels changes in cells and organs in fat, carbohydrate and mineral dystrophies, necrosis and atrophy;								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; Pathomorphologically diagnose tumors of different origin and hemoblastosis;	x		x		x			-survey theoretical issues, -performing tasks at the hospital, testing, -performing tasks independent work
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	x	x		x	x	x	x	-survey theoretical 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.								-performing tasks at the hospital, testing, -performing tasks independent work
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**8 semester**

MLOs: On successful completion of the module the learner will be able to:	PLOs			How assessed
	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		- Oral control (participation in a discussion on the topic of the lecture) - 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)) - Laboratory-practical control (performance of tasks on laboratory works)
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	- Oral control (participation in a discussion on the topic of the lecture) - 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

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 3. 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	- Oral control (participation in a discussion on the topic of the lecture) - 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)) - Laboratory-practical control (performance of tasks on laboratory works)
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	- Oral control (participation in a discussion on the topic of the lecture) - 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)) - Laboratory-practical control (performance of tasks on laboratory works)
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	- Oral control (participation in a discussion on the topic of the lecture) - 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)) - Laboratory-practical control (performance of tasks on laboratory works) - Final control (solving tests)
MLOs 6. To study the changes of nerve cells in the defeat of the nervous system. Know the	x	x	x	- Oral control (participation in a discussion on the topic of the lecture) - Laboratory-practical control (performance

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

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

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

autopsy of animal carcasses for verification of lifelong diagnosis.					
<b>Topic 3.</b> Pathological changes in the organs of animals in diseases of various etiologies	2		2	5	3, 5, 6, 7, 11
<b>Topic 4.</b> Rules of selection of pathological material	1		2	5	3, 5, 6, 7, 11
<b>Topic 5.</b> Methods of disposal and disposal of cadaveric material.	1			4	3, 5, 6, 7, 11
<b>Topic 6.</b> Early and late cadaveric signs. Organization of autopsy, veterinary and sanitary requirements for the autopsy site.	1			5	3, 5, 6, 7, 11
<b>Topic 7.</b> Appointment of pathological tools during section work	1			2	3, 5, 6, 7, 11
<b>Topic 8.</b> Technique and features of pathological autopsy of corpses of different species of animals.	2			5	3, 5, 6, 7, 11
<b>Topic 9.</b> Features of pathological and anatomical examination of various organs	2		2	6	3, 5, 6, 7, 11
<b>Topic 10.</b> Features of autopsy of ungulates and cattle				6	3, 5, 6, 7, 11
<b>Topic 11.</b> Features of autopsy of pigs and carnivores				6	3, 5, 6, 7, 11
<b>Topic 12.</b> Features of autopsy of poultry carcasses. Features of autopsy of small domestic and laboratory animals			2	6	3, 5, 6, 7, 11
<b>Topic 13.</b> Compilation of pathoanatomical documentation.			3	10	3, 5, 6, 7, 11
<b>Topic 14.</b> The concept of pathological diagnosis. Special pathomorphology			2	6	3, 5, 6, 7, 11
<b>Topic 15.</b> Features of pathological changes in diseases of the cardiovascular and hematopoietic systems.			1	8	3, 5, 6, 7, 11
<b>Topic 16.</b> Features of pathological changes in diseases of the respiratory and the digestive systems.			1	8	3, 5, 6, 7, 11
<b>Topic 17.</b> Features of pathological changes in diseases of the genitourinary and nervous systems			1	6	3, 5, 6, 7, 11
<b>Topic 18.</b> Organ pathology in acute and chronic bacterial diseases.			2	12	3, 5, 6, 7, 11
<b>Topic 19.</b> Differential pathological diagnosis of animal diseases.			2	12	3, 5, 6, 7, 11

<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
<b>Total</b>	14		24	142	

#### 4. TEACHING AND LEARNING METHODS

MLOs	Teaching methods (directed study)	Hours	Learning methods (self-directed study)	Hours
<b>7 semester</b>				
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	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	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	26

<p>processes in tissues, organs, as well as the reaction of the immune system; Pathomorphologically diagnose tumors of different origin and hemoblastosis;</p>	<p>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.</p>		<p>theoretical foundations of general pathological anatomy.</p>	
<p>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;</p>	<p>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.</p>	4	<p>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.</p>	30
<p>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.</p>	<p>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.</p>	6	<p>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.</p>	50

8 semester				
MLOs 1	<p>Survey of students with explanation of key questions of the subject, answers to students' questions, mastery of practical skills, methods of laboratory work.</p> <p>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</p> <p>Solving clinical and situational problems (the concept of pathological diagnosis, its components, variants of the underlying disease).</p> <p>Carrying out of autopsy with the subsequent detailed analysis of a concrete case, discussion of the basic clinical data, filling of the corresponding part of the protocol of pathological research.</p>	5	<p>Independent elaboration of materials on the topic. Memorization of theoretical material, observation.</p> <p>On the basis of the studied and processed material of registration of the synopsis on independent work</p> <p>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 epicriz about the case.</p> <p>Acquaintance with the information of official sites on a subject of employment or a separate question.</p>	16
MLOs 2	<p>Survey of students with explanation of key questions of the subject, answers to students' questions, mastery of practical skills, methods of laboratory work.</p> <p>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</p> <p>Solving clinical and situational problems (the concept of pathological diagnosis, its components, variants of the underlying disease).</p> <p>Carrying out of autopsy with the subsequent</p>	5	<p>Independent elaboration of materials on the topic. Memorization of theoretical material, observation.</p> <p>On the basis of the studied and processed material of registration of the synopsis on independent work</p> <p>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</p> <p>Acquaintance with the information of official</p>	18

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

	<p>situational problems (the concept of pathological diagnosis, its components, variants of the underlying disease).</p> <p>Carrying out of autopsy with the subsequent detailed analysis of a concrete case, discussion of the basic clinical data, filling of the corresponding part of the protocol of pathological research.</p>		<p>diagnosis, registration of a clinical-pathological-anatomical epicrisis about the case</p> <p>Acquaintance with the information of official sites on a subject of employment or a separate question.</p>	
MLOs 5	<p>Survey of students with explanation of key questions of the subject, answers to students' questions, mastery of practical skills, methods of laboratory work.</p> <p>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</p> <p>Solving clinical and situational problems (the concept of pathological diagnosis, its components, variants of the underlying disease).</p> <p>Carrying out of autopsy with the subsequent detailed analysis of a concrete case, discussion of the basic clinical data, filling of the corresponding part of the protocol of pathological research.</p>	5	<p>Independent processing of materials on the topic.</p> <p>Memorization of theoretical material, observation.</p> <p>On the basis of the studied and processed material Fr.drawing up a synopsis of independent work</p> <p>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</p> <p>Acquaintance with the information of official sites on a subject of employment or a separate question.</p>	24
MLOs 5	<p>Survey of students with explanation of key questions of the subject, answers to students' questions, mastery of practical skills, methods of laboratory work.</p>	5	<p>Independent processing of materials on the topic.</p> <p>Memorization of theoretical material, observation.</p> <p>On the basis of the studied and processed material Fr.drawing up a</p>	24

	<p>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</p> <p>Solving clinical and situational problems (the concept of pathological diagnosis, its components, variants of the underlying disease).</p> <p>Carrying out of autopsy with the subsequent detailed analysis of a concrete case, discussion of the basic clinical data, filling of the corresponding part of the protocol of pathological research.</p>		<p>synopsis of independent work</p> <p>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</p> <p>Acquaintance with the information of official sites on a subject of employment or a separate question.</p>	
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## 5. ASSESSMENT

### 5.1. Diagnostic assessment

### 5.2. Summative assessment

#### 5.2.1. Intended learning outcomes methods:

#### 7 semester

№	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

№	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 discussion on the topic of the lecture).	<i>15 points / 15%</i>	According to the schedule of modules
5.	Examination (writing test)	<i>30 points / 30%</i>	According to the examination schedule

### 5.2.2. Grading criteria

<b>Summative assessment method</b>	<b>Unsatisfactory</b>	<b>Satisfactory</b>	<b>Good</b>	<b>Excellent</b>
Thematic survey	<i>5 semester &lt;20 6 semester &lt;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 &lt;20 6 semester &lt;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 provisions, but the student has difficulty explaining the solution of laboratory and practical problems.	The student has mastered the basic material, and understands and performs 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.	The student implements the theoretical material of the discipline in the 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	<i>≤ 5 marks</i>	<i>6–9 marks</i>	<i>10–13 marks</i>	<i>14–15 marks</i>
	The student gives the correct answer to several questions (≤ 33% of the correct answers).	The student has some knowledge provided in the program of the discipline, has the basic provisions	The student is generally well versed in the material, knows the basic provisions of the	The student demonstrates complete and solid knowledge of the study 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 presentation report of independently processed material	$\leq 5$ 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.

№	Formative Assessment elements	Date
1	Oral interview of students with explanation of key questions of the subject, answers to students' questions, mastering practical skills (methods of laboratory work)	During the lesson according to the schedule
2	Oral feedback from the teacher while working on solving clinical and situational problems	During the lesson according to the schedule
3	Written feedback from the teacher after checking the syllabus for self-study of the discipline.	Within a week, after execution

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

## 6. LEARNING RESOURCES

### Methodological support

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