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

Work program (syllabus) of the educational component

Autopsy and pathological diagnosis of animal diseases

compulsory

(compulsory/selective)

Implemented in the "Veterinary medicine" Academic Program

Area of specialization 211 -Veterinary medicine

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

Sumy-2022

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 15.06.2022
	Head Department, professor _____ (Petrov R.V.)

Approved by:

Guarantor of the Academic program _____ (Ulko L.G)

Dean of the Faculty _____ (Nechiporenko AI.)

Syllabus review (attached) is provided by : _____ (Шпаковська О. Г.
_____ (Тищенко О. Г.

Representative of the Department of Education Quality assurance, licensing and accreditation _____ (Вамник)

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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
2022-2023				

1. GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

1.	Title	Research methodology			
2.	Faculty/Department	Faculty of Veterinary Medicine, Virology, Pathanatomy and Poultry Diseases after Prof. I.I. Panikar Department			
3.	Type (compulsory or optional)	selective			
4.	Program(s) to which module is attached (to be filled in for compulsory types)	OP Veterinary Medicine 211 - Veterinary medicine			
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	7-8 semesters			
8.	ECTS credits number	5			
9.	Total workload and time allotment	Directed study			Self-directed study
		Lectures	Practical	Labs	
		14/-		-/16	46/74
10.	Language of instruction	English			
11.	Module leader	Associate Professor of Virology, Pathanatomy and Poultry Diseases Department, c. vet. med. Ivanovskaya L.B.			
11.1	Module leader contact information	FVM, office 15 or 17, 0965384585, lusj0951@gmail.com consultations every Friday from 14-15 to 15-30			
12.	General description of the educational component	«Autopsy and pathological diagnosis of animal diseases"- 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.			
13.	The purpose of the educational component	The purpose of the educational component is to form in students a system of special knowledge about the sequence of pathological examination of corpses of different species of animals in order to clarify the lifelong diagnosis, establish morphological changes in organs and causes of death.			
14.	Prerequisites for studying OK, connection with other educational components of OP	The educational component, as a basis for clinical subjects, is based on the foundations of general theoretical disciplines: pathomorphology, pathophysiology, forensic medicine, therapy, surgical diseases, infectious diseases, pediatrics, obstetrics and gynecology, urology, oncology, and integrates with these disciplines; this involves the formation of skills to apply the acquired knowledge and practical skills from the sectional biopsy course in the process of further study and in future professional activities.			
15.	The policy of academic	Applicants are explained the value of acquiring new Applicants are			

	integrity	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
16	Link in Moodle	https://cdn.snau.edu.ua/moodle/enrol/index.php?id=1929

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**	
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 purpose of pathological tools during section work. Organize the necessary level of individual safety	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

when working with corpse material. Have methods of disposal and disposal of cadaveric material.				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 pathomorphological diagnosis of diseases of the lungs, heart, spleen, liver, kidneys, uterus, gastrointestinal tract. Know the etiology of tumors, stages of carcinogenesis, the range of tumors, the main properties of tumor growth. Understand the principles of	x	x	x	- Oral control (participation in a discussion on the topic of the lecture) - Laboratory-practical control (performance of tasks on laboratory works) - 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))

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

Topic. List of issues to be addressed within the topic	Distribution of hours				Learning resources[1]
	Directed study			Self-directed study	
	Lectures	Practical	Labs		
7 semester					
Topic 1. Diagnosis and forensic autopsy of animal carcasses. Safety precautions when dissection organs.	2			3	[1, 5, 7, 14, 17]
Topic 2. The value of pathological autopsy of animal carcasses for verification of lifelong diagnosis.	2			3	[1, 5, 9, 16]
Topic 3. Pathological changes in the organs of animals in diseases of various etiologies	2			3	[1, 10, 12, 16]
Topic 4. Rules of selection of pathological material	1			3	[2, 5, 9, 13]
Topic 5. Methods of disposal and disposal of cadaveric material.	1			4	[1, 4, 8, 16]
Topic 6. Early and late cadaveric signs. Organization of autopsy, veterinary and sanitary requirements for the autopsy site.	1			5	[3, 4, 8, 13]
Topic 7. Appointment of pathological tools during section work	1			2	[1, 7, 8, 10]
Topic 8. Technique and features of pathological autopsy of corpses of different species of animals.	2			3	[1, 3, 8, 17]
Topic 9. Features of pathological and anatomical examination of various organs	2			5	[2, 4, 7, 13]
Topic 10. Features of autopsy of ungulates and cattle				5	[1, 3, 6, 12]
Topic 11. Features of autopsy of pigs and carnivores				5	[1, 6, 8, 14]
Topic 12. Features of autopsy of poultry carcasses. Features of autopsy of small domestic and laboratory animals				5	[3, 4, 8, 11]

[1]Конкретне джерело із основної чи додатково рекомендованої літератури

8 semester					
Topic 13. Compilation of pathoanatomical documentation.			3	10	
Topic 14. The concept of pathological diagnosis. Special pathomorphology			2	6	[1, 3, 8, 17]
Topic 15. Features of pathological changes in diseases of the cardiovascular and hematopoietic systems.			1	6	[3, 7, 10, 16]
Topic 16. Features of pathological changes in diseases of the respiratory and the digestive systems.			1	6	[4, 9, 10, 17]
Topic 17. Features of pathological changes in diseases of the genitourinary and nervous systems			1	6	[1, 6, 9, 13]
Topic 18. Organ pathology in acute and chronic bacterial diseases.			2	10	[1, 7, 8, 12]
Topic 19. Differential pathological diagnosis of animal diseases.			2	10	[4, 5, 11, 16]
Topic 20. Organ pathology in infectious diseases of bacterial and viral etiology.			2	10	[1, 3, 9, 13]
Topic 21. Pathomorphological diagnosis of non-communicable animal diseases. Pathomorpho-logical diagnosis of tumors			1	6	[1, 5, 9, 14]
Topic 22. Technique of making museum preparations.			1	4	[1, 7, 10, 17]
Total	14		16	120	

4. TEACHING AND TEACHING METHODS

MLOs	**Teaching methods (directed study)**	**Hours**	**Learning methods (self-directed study)**	**Hours**
MLOs 1	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	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-	16

	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 corresponding part of the protocol of pathological research.		anatomical epicriz about the case. Acquaintance with the information of official sites on a subject of employment or a separate question.	
MLOs 2	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 corresponding part 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 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).	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	18

	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.		Acquaintance with the information of official sites on a subject of employment or a separate question.	
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 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 corresponding part of the protocol of pathological research.	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 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.	20
MLOs 5	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	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 diagnosis, registration of a clinical-pathological-anatomical epicrisis about the case Acquaintance with the information of official sites	24

	analysis of a concrete case, discussion of the basic clinical data, filling of the corresponding part of the protocol of pathological research.		on a subject of employment or a separate question.	
MLOs 6	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 corresponding part of the protocol of pathological research.	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 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.	24

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).	*15 points / 15%*	According to the schedule of modules
5.	Examination (writing test)	*30 points / 30%*	According to the examination schedule

5.2.2. Grading criteria

Summative assessment method	**Unsatisfactory**	**Satisfactory**	**Good**	**Excellent**
	<14 points	*15-24 points*	*25-34 points*	*35–40 points*
Thematic survey. Oral control	The student can reproduce only individual fragments of the course.	The student has certain knowledge provided in the program of the discipline, has the basic provisions studied at a level that is defined as the minimum allowable	The student is generally well versed in the material, knows the basic principles of the material, makes an analysis of possible situations based on them and is able to apply it in solving typical practical problems, but admits some inaccuracies	The student demonstrates complete and solid knowledge of the educational material in the amount that corresponds to the program of the discipline, correctly and reasonably makes the necessary decisions in various non-standard situations.
	<9 points	*10-19 points*	*20-29 points*	*30 points*
Laboratory-practical control (performance of tasks in laboratory works). Working with animals	The student is not prepared to solve problems, the answer is incomplete, some components are missing or insufficient to disclose	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue Using the basic theoretical provisions, the student has difficulty performing the task. Execution of tasks is significantly	The student has mastered the basic material, and understands the solution of problems, has suggestions on the direction of their solutions. All the requirements of the task are met, but in violation of the methods	The task is performed methodically correctly and qualitatively. The student is able to implement the theoretical provisions of the discipline in practice When performing tasks, he showed the ability to solve tasks independently

		formalized: there is compliance with the algorithm, but there is no deep understanding of the work		
	<5 points	*5-8 points*	*8-14 points*	*15 points*
Written control (performance of tasks on independent work). Protection of the abstract from independent work. Solving clinical and situational problems	The student does not have a complete understanding of the material on the discipline. The student is not prepared to independently solve problems that outline the purpose and objectives of the discipline	Despite the fact that the student completed the program of the discipline, he worked passively, his answers during the design of works are mostly incorrect, unfounded	Knows the characteristics of the main provisions that are crucial in performing the design of tasks and explaining the decisions made, within the discipline being studied. Errors in the answers are not systemic.	When performing tasks, he showed the ability to solve tasks independently. The synopsis is an impeccably designed, logically arranged material with an understanding of the interrelationships of the processes revealed on this topic.
Multiple choice tests	*<5 points*	*5-8 points*	*8-14 points*	*15 points*
	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 principles 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 basics 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 correct answers).
Design and presentation report of independently processed materia	*≤ 5 points*	*6–9 points*	*10–13 points*	*14–15 points*
	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	The student does not have a complete understanding of the material on the discipline. The student did not perform independent study of the material.

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 (LITERACHA)

6.1. The main sources

6.1.1 Textbooks, manuals

1. Zon G.A. Pathological anatomy of parasitic diseases of animals. Sumy: "Source", 2005. 252 p.
2. Zon G.A. Forensic veterinary examination: a textbook. Sumy: GDP "Dream-1", 2002. 258 p.
3. Zon G.A., Ivanovskaya L.B. Differential pathological diagnosis of infectious diseases of animals. Third edition. Sumy; GDP "Dream-1", 2015. 206 p.
4. Zon G.A., Ivanovskaya L.B. Pathological anatomy of animal carcasses: a textbook. Third edition, supplemented. Sumy: GDP "Dream-1", 2018. 336 p.
5. Ivanovskaya L.B., Zon G.A. Pathological diagnosis poultry diseases: Textbook . Sumy: GDP "Dream-1", 2017. 156 c.
6. J.E. van Dijk, E. Gruys (2007). **Color Atlas** of Veterinary Pathology, second edition. Spai. 200 p.
7. John M. King, Lois Roth-Johnson, David C. Dodd, Marion E. Newsom (2013). **The necropsy book.** 7th Edition. Cornell University. 248 p.

6.1.2. Methodical support

8. SMC in the discipline "Dissection and pathological diagnosis of animal diseases. / Zon GA - Sumy, 2012 (SNAU website)
9. Methodical instructions on independent work of students on autopsy. Sumy, SNAU, 2013.
10. Zon G.A., Ivanovskaya L.B.Methodical instructions for training in pathoanatomy. Sumy, 2010.

6.1.3. Other sources

11. https://library.snau.edu.ua
12. https://www.acvs.org/veterinary-surgery-journal

6.2. Additional sources

13. Borisevich BV, Skripka MV, Lisova VV Handbook of pathological and anatomical terms. Poltava, 2005. 124 p.
14. Kokurichev PI, Domnin BT, Kokuricheva MP Pathanatomy of farm animals: Album, St. Petersburg: Agropromizdat, 1994. 212 p.

15. Krivutenko AI, Zhakov MS, Urbanovich PP Handbook of pathological diagnosis of diseases of farm animals; under ed. AIKrivutenko. K .: Urozhay, 1983. 168 s.
16. Akulov AV, VM Apatenko, Bessarabov BF, Velikovskaya Yu.A. etc. Pathological diagnosis of bird diseases; ed. VP Шишкова. M .: Kolos, 1978. 440 s.
17 Aurorov AA, Akulov AV, Burba LB, Zhakov MS, etc. Pathological diagnosis of diseases of pigs; under ed. В.П.Шишкова. M .: Kolos, 1984. 335 s.
18. Akulov AV, Apatenko VM, Arkhipov NI, Buzmakov RA etc. Pathological diagnosis of cattle diseases; under ed. В.П.Шишкова. M .: Agropromizdat, 1987. 399 s.

6.2. Software

- Microsoft Power Point - data visualization Microsoft Power BI - analytics and data visualization
- Multimedia projector, whiteboard and screen;
- Moodle distance learning and control system