


Ministry of Education and Science of Ukraine  
Sumy national agrarian university  
Faculty of Veterinary Medicine  
Chair veterinary and sanitary inspection, microbiology, hygiene and  
pathological anatomy

**Working program ( syllabus ) educational component**

**Veterinary virology**

<b>Specialty</b>	211 VETERINARY MEDICINE
<b>Educational program</b>	<b>VETERINARY MEDICINE</b>
<b>Level higher education</b>	second (master's) level higher education


Sumy – 2026

**Developer:**  Petrov R.V., Doctor of Veterinary Science,  
Professor, Head of the Department of Veterinary and Sanitary Inspection, Microbiology, Hygiene and Pathological  
Anatomy

(signature)


(surname, initials)

(scientist degree and rank, position)

Reviewed, approved and ratified at the department meeting veterinary and sanitary inspection, microbiology, hygiene and pathological anatomy (name of the department)	protocol No. 15 dated 02.06.2026	
	Manager departments	<u></u> (signature) <b>Petrov R.V.</b> (last name, initials)

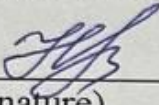
**Agreed:**

Guarantor educational programs

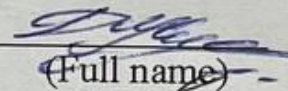
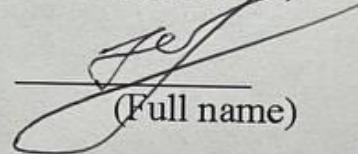
  
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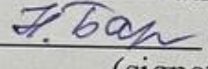
Oleksandr CHEKAN  
(full name)

Dean of the faculty where the educational program is implemented

 Nagorna L.V.  
(signature) (full name)

Review of the work program (attached) provided by:

  
(Full name)  
  
(Full name)

Methodologist of the Department of Educational Quality, licensing and accreditation  J. Ban (Jagda Banarix)  
(signature) (full name)

Registered in the electronic database: date: 19.06 . 2026.

Information on reviewing the work program (syllabus):

Academic year in which changes are made	Number of the appendix to the work program with a description of the changes	Changes reviewed and approved		
		Date and number of the minutes of the department meeting	Head of the Department	Educational program guarantor

## 1. GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

1.	Name OK	Veterinary virology		
2.	Faculty/department	Veterinary medicine Department of Veterinary and Sanitary Inspection, Microbiology, Hygiene and Pathological Anatomy		
3.	Status OK	Mandatory		
4.	Program/Specialty (programs), part of which is the OK for ( <i>filled in for mandatory OKs</i> )	Veterinary medicine /211 Veterinary medicine		
5.	The OK can be offered for ( <i>filled in for selective OKs</i> )	-		
6.	NQF level	NQF of Ukraine – level 7, QF-EHEA – second cycle, EQF-LLL – level 7		
7.	Semester and duration of study	5th semester, 18 weeks		
8.	Number of ECTS credits	5.0		
9.	Total hours and their distribution	Contact work (classes)		Independent work
		Lectures	Practical/seminar	Laboratory
		2		
				148
10.	Language of instruction	English		
11.	Teacher/Educational Component Coordinator	Petrov Roman Viktorovich		
11.1	Contact information	mob tel. +380663927928, e-mail- <a href="mailto:romanpetrov1978@gmail.com">romanpetrov1978@gmail.com</a> <a href="https://vet.snau.edu.ua/kafedri/vetsanekspertizi-mikrobiologi%dl%97-zoogigiyeni-ta-bezpeki-i-yakosti-produktiv-tvarinnictva/sklad-kafedri/petrov-roman-viktorovich-d-vet-n-profesor/">https://vet.snau.edu.ua/kafedri/vetsanekspertizi-mikrobiologi%dl%97-zoogigiyeni-ta-bezpeki-i-yakosti-produktiv-tvarinnictva/sklad-kafedri/petrov-roman-viktorovich-d-vet-n-profesor/</a>		
12.	General description of the educational component	" Veterinary virology" - as an academic discipline, it lays the foundations of knowledge about the nature, systematics; structure, chemical composition of viruses; reproduction and methods of cultivating viruses; genetics of viruses; acquaintance with the pathogenesis of viral diseases; acquaintance with the features of antiviral immunity, means and methods of diagnosis and prevention		
13.	Purpose of the educational component	The purpose of the educational component is to form in students deep theoretical knowledge and practical skills on the general structure, properties, biological role of viruses, as well as individual representatives of the main families of viruses; features of the pathogenesis of viral infections; features of immunity and prevention in viral infections and methods of diagnosing viral infections. Studying the discipline produces		

		in students the acquisition of theoretical knowledge, the formation of professional skills and the development of clinical thinking in laboratory diagnostics of infectious diseases.
14.	Prerequisites for studying OK, connection with other educational components of OP	The educational component, being the basis for clinical subjects, is based on the foundation of general theoretical disciplines: Veterinary microbiology and immunology , Cytology, histology, embryology , Animal physiology The educational component is the basis for studying the following subjects: Epizootology and infectious diseases
15.	Academic Integrity Policy	Applicants are explained the value of acquiring new knowledge; the value and functions of academic integrity; they are informed about the inadmissibility of plagiarism, they are encouraged to independently complete educational tasks, correctly refer to sources of information in case of borrowing scientific materials. Cheating during tests and exams is prohibited (including using mobile devices). Written works must have correct text references to the literature used. For violation of academic integrity, students may be held academically liable for the following: Academic plagiarism – score 0, re-do the assignment. Academic fraud (copying, cheating, passing off someone else's work as your own) - cancellation of points received; re-taking the assessment; re-doing the work not completed independently with new initial data; Using electronic devices during the final knowledge test – suspension from work, score 0, retaking the final test
16.	Link to the course in Moodle	<a href="https://cdn.snau.edu.ua/moodle/enrol/index.php?id=278">https://cdn.snau.edu.ua/moodle/enrol/index.php?id=278</a>
17.	Keywords of the educational component	Viruses, diseases, immunity, vaccines, diagnostics, serological reactions

## 2. LEARNING OUTCOMES BY EDUCATIONAL COMPONENT AND THEIR RELATIONSHIP WITH PROGRAM LEARNING OUTCOMES

<p><b>Learning outcomes for OK:</b></p> <p>After studying the educational component, the student is expected to be able to...</p>	PRN4	PRN9	How is RND assessed?
<p>DRN 1. Know: safety rules and work with materials containing viruses. Virological laboratory equipment. Grind , homogenize , filter and dose researched material . Use: Seitz filters , syringes, thermostat, other modern laboratory equipment Know: shape, size and ultrastructure of viruses (genome, capsid , nucleocapsid , nucleoid , supercapsid ), types of symmetry of viruses. Nucleic acids of viruses. Collect samples, transport and perform primary processing of pathological material for virological research; use light and fluorescence microscopy in virology. Use: centrifuges, homogenizers, filters, scales, syringes, dispensers; thermostat, light and fluorescent microscopes and other modern laboratory equipment.</p>	+	+	<ul style="list-style-type: none"> <li>- Oral control (participation in a discussion on the topic lectures )</li> <li>- Laboratory and practical control ( performance laboratory tasks )</li> <li>- Written control ( performance) tasks from independent work , independent study of the topic as a whole or individual issues of independent work (testing results, preparation of presentations, presentation report of independently developed material )</li> <li>- Solution situational tasks</li> </ul>
<p>DRN 2. Know the morphology, antigenic structure, cultivation, and environmental stability of rabies and Aujeszky's disease viruses . Mammalian and birdpox viruses, mammalian and bird influenza, foot-and-mouth disease, duckling hepatitis immunity and specific prevention. Conduct laboratory diagnostics of diseases caused by the above viruses. Select, preserve patmaterial , prepare virus-containing suspension, detect viruses in patmaterial by inclusion bodies and virions , infect laboratory animals and detect signs of virus reproduction in the body of infected laboratory animals. Cultivate viruses in chicken embryos, cultivate viruses in cell culture (prepare a primary cell culture and infect it with the virus) .</p>	+	+	<ul style="list-style-type: none"> <li>- Oral control (participation in a discussion on the topic lectures )</li> <li>- Laboratory and practical control ( performance laboratory tasks )</li> <li>- Written control ( performance) tasks from independent work , independent study of the topic as a whole or individual issues of independent work (testing results, preparation of presentations, presentation report of independently developed material )</li> <li>- Solution situational tasks</li> </ul>
<p>DRN 3. Know morphological and biological properties of viruses of infectious rhinotracheitis , parainfluenza -3, bovine diarrhea, bovine leukemia , Teschen disease , classical and African swine fever, equine infectious anemia and African horse sickness. Conduct laboratory diagnostics of diseases</p>	+	+	<ul style="list-style-type: none"> <li>- Oral control (participation in a discussion on the topic lectures )</li> <li>- Laboratory and practical control ( performance tasks in laboratory work)</li> <li>- Written control ( performance)</li> </ul>

caused by the above viruses. Select virus-containing material, find the virus in virus-containing material. Make a preliminary diagnosis and conduct laboratory diagnostics of diseases when solving diagnostic tasks.			tasks from independent work , independent study of the topic as a whole or individual issues of independent work (testing results, preparation of presentations, presentation report of independently developed material ) - Solution situational tasks - Final control ( test solving)
DRN 4. Know the morphological and biological properties of Newcastle disease viruses , infectious laryngotracheitis and infectious bronchitis of birds, Rous' sarcoma and avian leukemia, plague and infectious hepatitis of dogs, myxomatosis and rabbit hemorrhagic disease. Conduct laboratory diagnostics of diseases caused by the above viruses, immunity and specific prophylaxis. Titrates viruses by hemagglutinin and infectious activity with an assessment of the unit effect and with a statistically evaluated effect, find the virus or antibodies to it in the material in RZHA, RZHA <sub>d</sub> , RNGA <sub>d</sub> , RDP. Detect, identify viruses or antibodies to them in RN, RZHA, RAL, RIF, ELISA, PCR.	+	+	- Oral control (participation in a discussion on the topic lectures ) - Laboratory and practical control ( performance laboratory tasks ) - Written control ( performance) tasks from independent work , independent study of the topic as a whole or individual issues of independent work (testing results, preparation of presentations, presentation report of independently developed material ) - Solution situational tasks

### 3. CONTENT OF THE EDUCATIONAL COMPONENT (COURSE PROGRAM)

Topic. List of issues to be addressed within the topic	Distribution within the overall time budget			Recommended reading <sup>1</sup>	
	Classroom work		Independent work		
	Lecture	P.z	Lab with.		
<b>5th semester</b>					
<b>Topic 1.</b> Subject, methods and tasks of veterinary virology. Structure of simple and complex viruses, chemical composition of viruses. Viral nucleic acids, proteins, carbohydrates, lipids. Forms of symmetry of viruses	2			4	[ 1, 7, 14, 17 , 20 ]
<b>Topic 2.</b> Classification of viruses. Criteria for classifying viruses. Characteristics of the families of DNA-genomic and RNA-genomic viruses				4	[ 1, 5, 9, 16 , 19]

<sup>1</sup> Specific source from the main or additionally recommended literature

<p><b>Topic 3.</b> Virus reproduction. General concepts about virus reproduction. Stages of virus reproduction.</p> <p><b>Topic 4.</b> Genetics of viruses. Structure and functions of the viral gene. Heredity in viruses. Genetic features of viruses. Methods of virus selection and production of live antiviral vaccines.</p>				6	<p>[ 1, 10, 12, 15 , 20 ]</p> <p>[ 2, 5, 9, 13 , 18 ]</p>
<p><b>Topic 5.</b> Pathogenesis of viral infections. Pathogenesis of viral infections at the cellular level. Pathogenesis of viral infections at the organismal level</p> <p><b>Topic 6.</b> Principles of laboratory diagnostics of viral diseases . Principles of virological research and its sequence.</p>				32	<p>[ 1, 6, 8, 17 , 21]</p> <p>[ 2, 4 , 7, 10 , 18]</p>
<p><b>Topic 7.</b> Serological reactions in virology. Methods of virus titration. Titration of viruses by infectious effect. Titration of viruses by infectious effect with estimation of a single effect. Titration of viruses by infectious effect with statistically estimable effect. Titration of viruses by hemagglutinating effect. Use of serological reactions in virology , Hemagglutination retention reaction (hemagglutination inhibition reaction). Diffusion precipitation reaction in agar gel. Neutralization reaction. Indirect (passive) hemagglutination reaction. Latex agglutination reaction. Hemadsorption retention reaction . Hemadsorption neutralization reaction . Complement binding reaction . Immunofluorescence reaction (fluorescent antibody method). Principle of RIF, use in virology. Scheme of RIF setup. Scheme of indirect RIF setup. Enzyme-linked immunosorbent assay. Principle of ELISA, use in virology. Scheme of the histochemical version of ELISA. Scheme of the solid-phase version of ELISA.</p>				28	<p>[ 3, 4, 8, 13 , 20]</p>
<p><b>Topic 8.</b> Rabies viruses and Aujeszky's disease . Laboratory diagnostics of viral diseases</p>				4	<p>[ 1, 7, 8, 10 , 14]</p>
<p><b>Topic 9.</b> Mammalian and avian pox viruses . Laboratory diagnostics of viral diseases</p>				4	<p>[ 1, 3, 8, 17 , 19]</p>

<p><b>Topic 10.</b> Mammalian and avian influenza viruses. Laboratory diagnostics of viral diseases</p> <p><b>Topic 11.</b> Foot-and-mouth disease virus. Duckling hepatitis virus Laboratory diagnostics of viral diseases</p>				6	[ 2, 4, 7, 13 , 18] [ 1, 3, 6, 12 , 17]
<p><b>Topic 12.</b> Viruses of infectious rhinotracheitis , parainfluenza, and cattle diarrhea. Laboratory diagnostics of viral diseases</p> <p><b>Topic 13.</b> Bovine leukemia virus. Equine infectious anemia and African foot-and-mouth disease viruses. Laboratory diagnostics of viral diseases</p>				12	[ 2, 4, 10, 11 , 16] [1, 6, 8, 14 , 18 ]
<p><b>Topic 14.</b> Classical and African swine fever viruses. Teschen disease virus . Laboratory diagnostics of viral diseases</p>				6	[1, 3, 9, 13 , 21 ]
<p><b>Topic 15.</b> Molecular genetic methods for diagnosing viral diseases of animals. Polymerase chain reaction, its use in virology</p>			6	6	[3, 4, 8, 11]
<p><b>Topic 16.</b> Newcastle disease virus . Viruses of infectious laryngotracheitis and infectious bronchitis of birds. Viruses of Marek's disease , avian leukemia.</p> <p><b>Topic 17.</b> Canine distemper and hepatitis viruses. Myxomatosis and rabbit hemorrhagic disease viruses.</p>				10	[ 1, 5, 9, 16 , 19] [ 3, 7, 10, 16 , 18]
<p><b>Topic 18.</b> Laboratory diagnostics of viral diseases . Using diagnostic kits in diagnosing viral diseases of animals. Solving diagnostic problems.</p>				20	[ 4, 9, 10, 17 , 21 ]
<b>Total</b>	<b>2</b>			<b>148</b>	

### 3.1. Teaching practice

Topic. List of issues that will be considered within the scope of practical training in the discipline "Parasitology and Invasive Animal Diseases"	Distribution within the overall time budget		Recommended reading
	Classroom work	Independent work	
<p>Topic 1. Rules for selection , packaging , labeling and transportation pathological material for virological research</p> <p>Requirements biosafety and biosecurity when working with virus - containing material . The answer is pathological material from different species animals and poultry . Preparation , preservation , packaging and shipment of samples to the virological laboratory laboratories . General scheme of virological</p>	4	2	Textbooks, manuals: 3-5 ; Methodological support: 4;5,6

diagnostics infectious animal diseases .			
<p>Topic 2. Methods primary processing pathological material and indications in the Russian language</p> <p>Preparation virus-containing suspensions . Grinding , homogenization , centrifugation and filtration material . Methods detection viruses in pathological Light , luminescent and electronic materials microscopy in virology . Detection intracellular inclusion bodies .</p>	4	2	Textbooks, manuals: 3-5 ; Methodological support: 4;5,6
<p>Topic 3. Cultivation viruses in biological systems</p> <p>Methods infection laboratory animals , chicken embryos and cell cultures . Signs reproductions Viruses in biological systems . Assessment cytopathic actions viruses in culture Cells . Isolation and accumulation viruses for laboratory research .</p>	4	2	Textbooks, manuals: 3-5 ; Methodological support: 4;5,6
<p>Topic 4. Serological methods laboratory diagnostics viral diseases</p> <p>Production and account results reactions hemagglutination and delays hemagglutination reaction neutralization , reaction diffuse precipitation , reaction indirect hemagglutination . Use enzyme immunoassay analysis (ELISA) and reactions immunofluorescence (IF) for detection viruses and specific antibodies .</p>	4	2	Textbooks, manuals: 3-5 ; Methodological support: 4;5,6
<p>Topic 5. Molecular biology methods and comprehensive diagnostics viral diseases animals</p> <p>Polymerase chain reaction reaction (PCR) and its veterinary use virology . Interpretation results laboratory research . Differential diagnostics viral diseases of animals and poultry . Development of an algorithm for laboratory diagnostics and prevention main viral infections animals .</p>	4	2	Textbooks, manuals: 3-5 ; Methodological support: 4;5,6
<b>Total</b>	<b>20</b>	<b>10</b>	<b>30</b>

TRAINING PRACTICE IN VETERINARY VIRUSOLOGY

#### 4. TEACHING AND LEARNING METHODS

DRN	Teaching methods (work that will be carried out by the teacher <u>during classroom lessons</u> , consultations)	Number of hours	Teaching methods (what types of learning activities should <u>the student perform independently</u> )	Number of hours
DRN 1	<p>Theoretical teaching methods</p> <p>Lectures with multimedia support - covering biosafety rules , the structure of viruses, and the organization of the work of a virology laboratory.</p> <p>Problem lectures - analysis of the risks of working with virus-containing materials and selection of optimal methods for their processing.</p> <p>Mini-lectures and explanations by the teacher - on the ultrastructure of viruses, types of symmetry, and properties of nucleic acids.</p> <p>Independent study of educational materials - working with textbooks, methodological recommendations, and scientific articles.</p> <p>Practical learning methods</p> <p>Laboratory classes - practicing techniques for grinding, homogenization, filtration, and dosing the material under study.</p> <p>Demonstration by the teacher of the rules for working with Seitz filters , syringes, dispensers, centrifuges, thermostats, and other laboratory devices.</p> <p>Training exercises - preparation of pathological material, sampling, their transportation and primary processing.</p> <p>Microscopy practice — working with light and fluorescent microscopes to detect viral objects.</p> <p>Interactive teaching methods</p> <p>Case method — solving situational problems regarding the organization of virological research and compliance with biosafety .</p> <p>Work in small groups - performing laboratory procedures and discussing results.</p> <p>Discussions and deliberations — comparison of material processing methods and structural features of different groups of viruses.</p> <p>Simulation exercises - modeling the work of a virology laboratory and the algorithm of actions when working</p>	12	<p>Independent processing materials on the topic .</p> <p>Memorizing theoretical material , observation .</p> <p>Based on studied and worked out material for creating a self-study outline</p> <p>Familiarization with information on official websites on the topic of the lesson or a specific issue.</p> <p>Solution situational tasks</p>	12

	with potentially dangerous material.			
DRN 2	<p>Survey students with explanation key subject questions , answers to questions students , mastery practical skills , execution techniques laboratory works .</p> <p>Interactive discussion of the topic in the form of discussions that includes information presented in diagrams and pictures .</p> <p>Working with real facilities for virological research and models .</p>	16	<p>Independent processing materials on the topic .</p> <p>Memorizing theoretical material , observation .</p> <p>Based on studied and worked out material for creating a self-study outline</p> <p>Familiarization with information on official websites on the topic of the lesson or a specific issue.</p> <p>Solution situational tasks</p>	16
DRN 3	<p>Theoretical teaching methods</p> <p>Multimedia-supported lectures on the morphology, biological properties, pathogenesis, antigenic structure, epizootology, immunity and prevention of infectious bovine rhinotracheitis , parainfluenza-3, bovine viral diarrhea, bovine leukemia, Teschen disease , classical and African swine fever, equine infectious anemia and African horse sickness.</p> <p>Problem lectures with an analysis of modern approaches to laboratory diagnostics of especially dangerous viral diseases of animals.</p> <p>Seminars to discuss differential diagnosis of viral diseases of various animal species.</p> <p>Independent work of students with scientific literature, international WOAHP recommendations, and modern diagnostic protocols.</p> <p>Practical learning methods</p> <p>Laboratory classes on the selection, packaging, labeling, and transportation of virus-containing pathological material.</p> <p>Demonstration and development of methods for primary processing of pathological material for virological studies.</p> <p>Practical detection of viruses and viral antigens in pathological material using modern laboratory methods.</p> <p>Performing laboratory tests using serological, immunofluorescent ,</p>	16	<p>Independent processing materials on the topic .</p> <p>Memorizing theoretical material , observation .</p> <p>Based on studied and worked out material for creating a self-study outline</p> <p>Familiarization with information on official websites on the topic of the lesson or a specific issue.</p> <p>Solution situational tasks</p>	16

	<p>molecular genetic and other diagnostic methods.</p> <p>Interpretation of laboratory test results and preparation of test protocols.</p> <p>Developing an algorithm for making a preliminary and final laboratory diagnosis.</p> <p>Interactive teaching methods</p> <p>Case study method with consideration of real and model outbreaks of viral animal diseases.</p> <p>Situational (diagnostic) tasks regarding the selection of material for research, methods of laboratory diagnostics and diagnosis.</p> <p>Work in small groups while analyzing clinical cases and laboratory test results.</p> <p>Discussions and professional discussion on the features of diagnosing particularly dangerous cross-border diseases.</p> <p>Modeling professional situations of the work of a veterinarian and a virology laboratory specialist.</p> <p>Teaching methods using modern technologies</p> <p>Use of electronic educational resources and distance learning platforms.</p> <p>Virtual laboratories and digital simulators for diagnostic studies.</p> <p>Analysis of digital micrographs, PCR, ELISA and other research results.</p>			
DRN 4	<p>Theoretical teaching methods</p> <p>Multimedia-supported lectures on the morphology, biological properties, antigenic structure, pathogenesis, immunity and specific prevention of Newcastle disease , infectious laryngotracheitis, infectious bronchitis of birds, Rous' sarcoma , avian leukemia, plague and infectious hepatitis of dogs, myxomatosis and hemorrhagic disease of rabbits.</p> <p>Problem lectures with an analysis of modern methods of laboratory diagnostics of viral diseases of animals and poultry.</p> <p>Seminars to discuss the features of epidemiology, diagnostics and prevention of viral infections.</p>	16	<p>Independent processing materials on the topic .</p> <p>Memorizing theoretical material , observation .</p> <p>Based on studied and worked out material for creating a self-study outline</p> <p>Familiarization with information on official websites on the topic of the lesson or a specific issue.</p> <p>Solution situational tasks</p>	16

	<p>Independent work with scientific literature, international recommendations and diagnostic protocols.</p> <p>Practical learning methods</p> <p>Laboratory classes on conducting serological, virological and molecular biological research.</p> <p>Demonstration and development of methods for titrating viruses by hemagglutinating and infectious activity.</p> <p>Practical implementation of RZHA, RZHAd , RNGAd , RDP reactions for the detection of viruses and specific antibodies.</p> <p>Performing virus and antibody identification reactions in RN, RNHA, RAL, RIF, ELISA and PCR.</p> <p>Working with biological material and interpreting laboratory test results.</p> <p>Calculation of virus and antibody titers, evaluation of research results using statistical methods.</p> <p>Interactive teaching methods</p> <p>Case method for analyzing outbreaks of viral diseases on farms.</p> <p>Situational tasks regarding the selection of optimal methods of laboratory diagnostics and specific prevention.</p> <p>Work in small groups while performing laboratory tests and analyzing results.</p> <p>Educational discussions on the advantages and limitations of different diagnostic methods.</p> <p>Modeling the diagnostic process from material selection to laboratory conclusion.</p> <p>Teaching methods using modern technologies</p> <p>Virtual laboratories and digital simulations of serological and molecular research methods.</p> <p>Analysis of digital micrographs and diagnostic results.</p> <p>Use of educational videos on ELISA, RIF and PCR.</p> <p>Working with electronic databases and diagnostic protocols.</p> <p>Control and evaluation methods</p>			
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## 5. EVALUATION BY EDUCATIONAL COMPONENT

### 5.1.Diagnostic assessment (indicated as needed)

## 5.2. Summative assessment

5.2.1. To assess the expected learning outcomes, there are

5th semester

No.	Summative assessment methods	Points / Weight in the overall score	Date of compilation
1.	Thematic survey	15 points / 15%	Weekly
2.	Completing tasks in the workbook during laboratory classes	15 points / 15%	According to the schedule
3.	Completion of independent tasks in a workbook. Report with a presentation on the topic of independent study of the discipline	15 points / 15%	According to the module delivery schedule
4.	Teaching practice	15 points / 15%	By week 15
5.	Multiple choice testing	10 points / 10%	According to the schedule
5.	Exam	30 points / 30%	During 11-13 weeks

### 5.2.2. Evaluation criteria

Component <sup>2</sup>	Unsatisfactorily	Satisfactorily	Good	Perfectly <sup>3</sup>
	<14 points	15-24 points	25-34 points	35-40 points
Thematic survey. Oral control	The student can only play individual fragments from the course.	The student has certain knowledge provided for in the discipline program, possesses the basic provisions studied at a level defined as the minimum acceptable	The student generally has a good command of the material, knows the main provisions of the material, makes an analysis of possible situations based on them and is able to apply them when solving typical practical tasks, but allows for some inaccuracies.	The student demonstrates complete and solid knowledge of the educational material in the volume that corresponds to the discipline program, correctly and reasonably makes the necessary decisions in various non-standard situations.
	<9 points	10-19	20-29 points	30 points
Laboratory and practical control ( performance tasks	The student is not prepared to solve the problems, the	Most requirements are met, but individual	The student has mastered the basic material,	Task performed methodically, correctly and

<sup>2</sup> Specify the summative assessment component

<sup>3</sup> Indicate the distribution of points and the criteria that determine the level of assessment

<p>in laboratory work) Solving clinical and situational tasks</p>	<p>answer is incomplete, some components are missing or not sufficiently disclosed</p>	<p>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 completing the tasks. The completion of the tasks is significantly formalized: there is compliance with the algorithm, but there is no deep understanding of the work</p>	<p>understands the problem statement, and has suggestions regarding the direction of their solutions. All task requirements have been met, but with a violation of the methods</p>	<p>qualitatively. The student is able to realize theoretical position disciplines in practice When performance tasks showed skill independently solve delivered task</p>
	<p><i>&lt; 5 points</i></p>	<p><i>5-8</i></p>	<p><i>8-14 points</i></p>	<p><i>15 points</i></p>
<p>Written control ( performance) tasks from independent work ). Defense of the abstract of independent work</p>	<p>The student lacks a complete understanding of the subject material. The student is not prepared to independently solve the problems outlined in the goal and objectives of the discipline.</p>	<p>Despite the fact that the student completed the program of the academic discipline, he worked passively, his answers during the design of the works are mostly incorrect, unfounded</p>	<p>Knows the characteristics of the main provisions that are of decisive importance in completing tasks and explaining the decisions made, within the discipline being studied. Errors in the answers are not systemic.</p>	<p>When performing tasks, he demonstrated the ability to independently solve the assigned tasks. The abstract is impeccably designed, the material is logically arranged with an understanding of the interrelationships of the processes disclosed on this topic.</p>
<p>Multiple choice tests</p>	<p>The student gives the correct answer to several questions (<math>\leq 33\%</math> correct answers).</p>	<p>The student has certain knowledge provided for in the discipline program, knows the basic provisions being studied, and gives the correct answer to several questions (34–59% of correct answers).</p>	<p>The student generally has a good command of the material, knows the main points of the material, and gives the correct answer to several questions (60–89% of correct answers).</p>	<p>The student demonstrates complete and solid knowledge of the educational material in the volume that corresponds to the discipline program, correctly answers the test questions (90–100% of correct answers).</p>

### 5.3. Formative assessment:

To assess current progress in learning and understand areas for further improvement,

No.	Elements of formative assessment	Date
1	Oral poll students with explanation key subject questions , answers to questions students , mastery practical skills (methods of execution laboratory works )	During the lesson
2	Oral feedback from the teacher while working on solving clinical and situational tasks	During the lesson
3	Written feedback from the teacher after checking the notes on the independent study of the discipline.	Within a week, after execution

## 6. LEARNING RESOURCES (LITERATURE)

### 6.1. Main sources

#### 6.1.1. Textbooks, manuals

- Thomas, C. G. (2021). *Research methodology and scientific writing*. Springer. (містить сучасні підходи до вірусологічних досліджень та біомедичної науки).
- Schroeder, T. (2022). *New Frontiers in Veterinary Virology*. American Medical Publishers.
- Abubakar, M., & Wensman, J. J. (Eds.). (2022). *Emerging Trends in Veterinary Virology*. Bentham Science Publishers. <https://doi.org/10.2174/97898150369611220101>
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