

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE**  
**SUMY NATIONAL AGRARIAN UNIVERSITY**  
**Faculty of Veterinary Medicine**  
Department of Veterinary and Sanitary Inspection, Microbiology,  
Hygiene and Pathological Anatomy

**MODULE SYLLABUS**

**Fundamentals of scientific research**  
\_ required \_

Implemented in the “Veterinary Medicine” Academic Program  
Area of specialization H 6 “ Veterinary Medicine”  
at the second (master 's) level of higher education

**Sumy- 2025**

Author: \_\_\_\_\_

(signature)

Yuliya BAYDEVLYATOVA \_\_\_\_\_

(surname, initials)

Ph.D., associate

(academic degree and title, position)

Considered, approved  
and approved at the  
meeting of the  
department of  
Veterinary and Sanitary  
Inspection,  
Microbiology, Hygiene  
and Pathological  
Anatomy

protocol from \_09.06.2025 № 16

The head  
departments



Roman PETROV \_\_\_\_\_


Approved by:


Guarantor of the Academic program \_\_\_\_\_

Dean of the Faculty \_\_\_\_\_

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Work program review (attached) provided:

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Methodist of the Department of Education Quality,  
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(N. Baranik \_\_\_\_\_)

(Full name)

Registered in the electronic database: date: \_\_\_\_\_ 01.07. 2025

**Syllabus review data:**

Academic year in which changes are made	The number of the application to the work program with a description of the changes	The changes have been reviewed and approved		
		Date and number of the minutes of the meeting of the department	Head of Department	Guarantor of the educational program

1.	Title	Fundamentals of scientific research			
2.	Faculty/Department	Veterinary medicine /			
3.	Type (obligatory or optional)	required 19			
4.	Program(s) to which module is attached	Veterinary medicine / H6 Veterinary medicine			
5.	Level of the National Qualifications Framework	-			
6.	Semester and duration of module	NRC of Ukraine - level 7, QF-EHEA - second cycle, EQF-LLL - level 7			
7.	ECTS credits number	semester 11,12; 30 weeks			
8.	Total workload and time allotment	5.0			
9.	The total number of hours and their distribution Language of instruction	Contact work (classes)			Individual work
		Lectures	Practical / seminar	Laboratory	
	11 semester	14		16	30
	12 semester	16		30	44
10.	Module leader	English			
11.	Module leader contact information	Yuliya BAYDEVLYATOVA			
12.	Module description	Fundamentals of scientific research – knowledge and igs – teaching. Methodology is considered as a doctrine of scientific methods of cognition and as a system of scientific principles on the basis of which research is based and the selection of cognitive means, methods and techniques of research is carried out. Methodology is a set of rules for defining concepts, deriving one knowledge from another, methods, techniques, operations of scientific research in all branches of science and at all stages of research. Methodology is a separate scientific discipline that studies the technology of conducting scientific research, the description and analysis of the stages of research; it is a doctrine of the system of scientific principles and methods of research activity. Methodology includes fundamental, general scientific principles that are its basis, specifically scientific principles that underlie the theory of a particular discipline or scientific field, and a system of specific methods and techniques used to solve special research problems.			
13.	Module aim	The main goal of scientific methodology is the study and analysis of methods, means, and techniques by which new knowledge is obtained in science at both the empirical and theoretical levels of cognition. Methodology is a scheme, a plan for solving the tasks of scientific research.			
14.	Module Dependencies (prerequisites, co-requisites, incompatible modules)	The educational component is based on the knowledge gained in the study of general biology, clinical disciplines, infectious pathology, and methods of economic research. Attendance at classes is mandatory, tardiness is unacceptable, students must adhere to the rules of conduct in classes; copying and using mobile phones are not allowed when writing tests, taking tests and exams. Retaking modules occurs if there are good reasons. Abstracts must necessarily contain references to the literature used.			

15.	The policy of academic integrity	During the study of the OK, any manifestations of academic dishonesty are not allowed. If a violation of academic integrity is detected (cheating, academic plagiarism, using gadgets while completing final assignments), the completed assignment is canceled and not credited, the applicant is sent to re-perform the set of assignments. In the event of violations, the response is in accordance with the regulatory documentation on the academic integrity of participants in the educational process at Sumy NAU
16.	Key words	small animals, veterinary care, diseases

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

Learning outcomes for OK: After studying the educational component, the student is expected to be able to...»	Program learning outcomes that the OK aims to achieve (indicate the number according to the numbering given in the OP) <sup>1</sup>					As estimated by RND
	PLOs 1	PLOs 3	PLOs 4	PLOs 10	PLOs 18	
DRN 1. - search for the necessary information from various resources; - use scientific literature, identify unresolved or insufficiently studied issues in it. evaluate the information received; - analyze the necessary statistical data;	+	+	+	+	+	survey of theoretical questions, completion of software tasks, testing, completion of independent work tasks
VRN 2. - plan and conduct experimental research; - use modern methods of laboratory diagnostics in veterinary medicine; - perform biometric processing of the obtained data; - draw up experimental reports and be able to interpret the obtained results;	+	+	+	+	+	survey of theoretical questions, completion of software tasks, testing, completion of independent work tasks

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

Topic. List of issues to be considered within the topic	Distribution within the total time budget				Recommended Books <sup>1</sup>
	Classroom work		Individual work		
	Luke	P.z / semin. with	Lab. with.		
11 semester					
<b>Topic 1.</b> Definition of discipline and its significance. History of the formation and development of science. Main stages of the development of biological science; Concept, goals and functions of science. Main directions of scientific research. Classification of sciences. Concept of methodology and methods of scientific research.	4	4		6	2, 3, 4, 7, 9
<b>Topic 2.</b> Information support for scientific research. Methods of obtaining and systematizing information. Rules for compiling a bibliographic description (DSTU 7:1:2006; DSTU 8302:2015).	2	4		6	1, 4, 8, 9,

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

<b>Topic 3.</b> Discoveries, inventions and innovative proposals. Patent research and patent search; invention formula; patent application and recognition of its novelty.	2	4		6	5, 9
<b>Topic 4.</b> Master's thesis. Choosing a topic, forming a working hypothesis and research objectives. Forming a literature review and conclusions from the review.	2	2		6	1, 2, 4, 6, 7, 9
<b>Topic 5.</b> Formation of the research goal. The procedure for teaching materials, their design and generalization. Main classes of UDC; selection of keywords, formation of annotations.	4	2		6	1, 2, 4, 6, 7
<b>Total 11 semester</b>	14	16		30	
<b>12 semester</b>					
<b>Topic 6.</b> Bioethical aspects in scientific work. Experimental research in veterinary medicine Basic requirements for conducting experimental research in veterinary medicine	2	6		10	2, 9, 14, 15
<b>Topic 7.</b> Features of conducting experiments on large farms using productive animals.	4	6		10	9, 12, 13
<b>Topic 8.</b> Special methods used in veterinary medicine. Research modeling.	4	6		10	2, 8, 9, 10, 12-15
<b>Topic 9.</b> Production verification of research results. Methods for assessing the effectiveness of research results.	2	6		10	1, 1, 5, 7, 8
<b>Topic 10.</b> Statistical method of measurement evaluation. Biometric processing of digital data results. Preparation of materials for publication.	6	6		4	1, 4, 7, 9, 11
<b>Total 12 semester</b>	16	30		44	

#### 4. METHODS OF TEACHING AND TEACHING

DRN	Teaching methods (work that will be carried out by the teacher during classroom lessons, consultations)	Number of hours	Teaching methods (what types of learning activities the student should perform independently)	Number of hours
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<p>DRN 1.</p> <ul style="list-style-type: none"> <li>- search for the necessary information from various resources;</li> <li>- use scientific literature, identify unresolved or insufficiently studied issues in it. evaluate the information received;</li> <li>- analyze the necessary statistical data;</li> </ul>	<p>Verbal: lecture, explanations on software and consultations.</p> <p>Explanatory-demonstrative method: constant explanation and demonstration of certain laboratory methods (illustrations, tables, slide shows) according to the lesson plan.</p>	20	<p>Partial search method - the student develops a specific topic using a textbook, manuals, Internet resources, etc. Reproductive - is used as a way to acquire practical research skills based on mastering the theoretical foundations of previously studied disciplines.</p>	20
<p>DRN 2.</p> <ul style="list-style-type: none"> <li>- plan and conduct experimental research;</li> <li>- use modern methods of laboratory diagnostics in veterinary medicine;</li> <li>- perform biometric processing of the obtained data;</li> <li>- draw up experimental reports and be able to interpret the obtained results;</li> </ul>	<p>Verbal: lecture, explanations on software and consultations.</p> <p>Explanatory-demonstrative method: constant explanation and demonstration of certain laboratory methods (illustrations, tables, slide shows, educational films) according to the lesson plan.</p> <p>Analytical - all data obtained during laboratory research are analyzed.</p>	24	<p>Partial search method - the student develops a specific topic using a textbook, manuals, Internet resources, etc. Reproductive - is used as a way to acquire practical research skills based on mastering the theoretical foundations of previously studied disciplines.</p>	26



## 5. ASSESSMENT

### 5.1. Diagnostic assessment

### 5.2. Summative assessment

#### 5.2.1. Intended learning outcomes methods:

№	Methods of summative evaluation	Points / Weight in the overall score	Date of compilation
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)	20 points / 20%	According to the schedule
3.	Laboratory-practical control (performance of tasks on laboratory works)	20 points / 20%	According to the schedule of the hospital
4.	Exam	30 points / 30%	15 week

#### 5.2.2. Grading criteria

Component <sup>2</sup>	Unsatisfactorily	Satisfactorily	Okay	Perfectly <sup>3</sup>
	<15 points	15-20 points	21-26 points	27-30 points
Thematic survey. Oral control	The student can play 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 in general is well versed in the material, knows the basic provisions of the material, makes an analysis of possible situations based on them and is able to apply 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.
	<7 points	8-13 points	14-19 points	20 points
Laboratory-practical control (performance of tasks on laboratory works) Solution of situational tasks	The student is not prepared to solve problems, the answer is incomplete, some components are missing or insufficient to disclose	Most 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. Tasks are significantly formalized: there is a correspondence of	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

<sup>2</sup> Indicate the component of summative assessment

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

		the algorithm, but there is no deep understanding of the work		
	<i>&lt;7 points</i>	<i>8-13 points</i>	<i>14-19 points</i>	<i>20 points</i>
Written control (performance of tasks on independent work). Protection of the abstract from independent work	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 registration of works are mostly incorrect, unfounded	Knows the characteristics of the main provisions that are crucial in performance of registration of tasks and explanation of the accepted decisions, within the discipline studied. Errors in the answers are not systemic.	When performing tasks, he showed the ability to solve tasks independently. The synopsis is designed flawlessly, logically arranged material with an understanding of the relationships of the processes disclosed on this topic.
Exam	<i>&lt;15 points</i>	<i>15-20 points</i>	<i>21-26 points</i>	<i>27-30 points</i>
	The issues of the exam ticket are not disclosed	2 questions are solved	3 questions are solved	Three issues are revealed and the own solution of the problem is offered

## 6. EDUCATIONAL RESOURCES (LITERATURE)

1. Yerina A.M., Zakhozhai V.B., Yerin D.L. Methodology of scientific research: Textbook. – K.: Center for educational literature, 2004. 212 p.
2. Klymenko M.O., Petruk V.G., Mokin V.B., Voznyuk N.M. Methodology and organization of scientific research: Textbook. Kherson: Oldi-plus, 2012. 474 p.
3. Konversky A. Ye., Lubsky V. I., Gorbachenko T. G., Bugrov V. A., Kondratyeva I.V., Rudenko O. V., Yushtyn K. E. Fundamentals of methodology and organization of scientific research: Textbook for students, cadets, graduate students and assistants / edited by A. Ye. Konverskogo. Kyiv: Center for Educational Literature, 2010. 352 p.
4. Krushelnytska O.V. Methodology and Organization of Scientific Research: Textbook. Kyiv: Condor, 2009. 206 p.
5. Stechenko D.M., Chmyr O.S. Methodology of Scientific Research: Textbook - [2nd ed.]. Kyiv: Znannia, 2007. 320 p.
6. Chornenky Ya.Ya. Fundamentals of Scientific Research. Organization of Independent and Scientific Work of a Student: Textbook /[Ya.Ya. Chornenky, N.V. Chornenka, S.B. Rybak, etc.]. Kyiv: Publishing House "Professional", 2006. 208 p.
7. Sheiko V.M., Kushnarenko N.M. Organization and methodology of scientific research activity: Textbook. – [2nd ed., revised and supplemented]. K.: Znannia – Press, 2008. 310p.
8. Yurinet V.E. Methodology of scientific research: a textbook. - Lviv: LNU, 2011. 178 p.
9. Yablonsky V. Science. Fundamentals of scientific research in animal husbandry and veterinary medicine: A textbook for the system of master's, postgraduate and doctoral studies. /V. Yablonsky, O. Yablonska, P. Plakhtiy. Kamianets-Podilsky: Medobory, 2001. 244 p.

### Additional sources

10. Bazhybina E., Korobov A., Sereda S., Saprykin V. (2004). Methodological bases of assessment of clinical and morphological indicators of blood of domestic animals. M.: OOO "Aquarium-Print". 128 p.
11. Goralsky L.P., Khomych V.T., Kononsky O.I. (2011). Fundamentals of histological techniques and morphofunctional methods of research in normal and pathological conditions: Textbook. Zhytomyr: Polissya. 288 p.
12. Zon G.A., Ivanovska L.B., Vashchuk E.V. (2016). Methodological guidelines for conducting practical classes and organizing independent work in the discipline "Methodology of scientific research" of the Master's degree program of the Faculty of Veterinary Medicine on the topic: "Biometric processing of digital data in veterinary medicine using modern information technologies". Sumy: SNAU. 27 p.
13. Microbiological and virological methods of research in veterinary medicine (reference book). Edited by A.N. Golovko. Kh.: NTMT, 2007. 512 p.
14. Meyer D., Harvey D. (2007). Veterinary laboratory medicine. Interpretation and diagnostics; [3rd ed.; Per s Engl.]. M.: Sofion. 456 p.
15. Basic methods of laboratory diagnostics of parasitic diseases. Geneva, WHO. 1994. 131 p.