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

Research methodology

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-2022

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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 AL)

Syllabus review (attached) is provided by: ________ (Шкромада О. І.
Зон Г. А.

Representative of the Department of Education Quality assurance, licensing and accreditation ________ (Гнапаи

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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

1. MODULE OVERVIEW

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)	compulsory			
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	9 semesters, 15 weeks			
8.	ECTS credits number	3			
9.	Total workload and time allotment	Directed study			Self-directed study
		Lectures	Practical	Labs	
		8		16	66
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	Methodology comes from the Greek word “methoges” - knowledge and “logos” - teaching. Methodology is considered as a doctrine of scientific methods of cognition and as a system of scientific principles on which the study is based and the choice of cognitive tools, methods and techniques of research. Methodology is a set of rules for defining concepts, deriving some knowledge from others, methods, techniques, operations of scientific research in all fields of science and at all stages of research. Methodology is a separate scientific discipline that studies the technology of scientific research, description and analysis of stages of research; it is a doctrine of a system of scientific principles and methods of research. The methodology includes fundamental, general scientific principles that underlie it, specifically the scientific principles underlying the theory of a discipline or field of science, and a system of specific methods and techniques used to solve special research problems.			
13.	The purpose of the educational component	The main purpose of the methodology of science - the study and analysis of methods, tools, techniques by which to obtain new knowledge in science at both empirical and theoretical levels of knowledge. Methodology is a scheme, a plan for solving the tasks of scientific research.			
14.	Prerequisites for studying	The educational component is based on the knowledge obtained in			

	OK, connection with other educational components of OP	the study of general biological, clinical disciplines, infectious diseases, methods of economic research.
15.	The policy of academic integrity	Attendance is mandatory, unacceptable delays, students must follow the rules of conduct in the classroom; You are not allowed to write off and use mobile phones while writing tests, taking tests and exams. Rearrangement of modules occurs for good reasons. Abstracts must have references to the literature used.
16	Course link in Moodle	https://cdn.snau.edu.ua/moodle/enrol/index.php?id=3736

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 5**	**PLOs 6**	**PLOs 11**	**PLOs 13**	**PLOs 18**	
MLOs 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 statistics;	x	x				x		poll theoretical issues, performing tasks on the software, testing, performing tasks independent work
MLOs 2. -- plan and conduct experimental research; - use modern methods of laboratory diagnostics in veterinary medicine; - to carry out biometric processing of the received data; - prepare reports of experiments and be able to interpret the results	x	x	x	x	x		x	poll theoretical issues, performing tasks on the software, testing, performing tasks independent work

3. MODULE INDICATIVE CONTENT

Topics	Distribution of hourse				Learning resources[1]
	Directed study			Self-directed study	
	Lectures	Practical	Labs		
Topic 1. Definition of discipline and its significance. History of formation and development of science. The main stages of development of biological science; Concepts, goals and functions of science. The main directions of scientific research. Classification of sciences. The concept of methodology and research methods.	1		1	6	2, 3, 4, 7, 9
Topic 2. Information support of scientific research. Methods of obtaining and systematizing information. Rules for compiling a bibliographic description (DSTU 7: 1: 2006; DSTU 8302: 2015).	1		1	6	1, 4, 8, 9,
Topic 3. Discoveries, inventions and innovations. Patent research and patent search; the claims; patent application and recognition of its novelty.	1		1	6	5, 9
Topic 4. Master's scientific work. Choice of topic, formation of a working hypothesis and tasks of scientific research. Forming a review of the literature and conclusions from the review.	1		2	6	1, 2, 4, 6, 7, 9
Topic 5. Formation of the purpose of research. The order of teaching materials, their design and generalization. UDC main classes; choice of keywords, formation of annotations.			2	6	1, 2, 4, 6, 7
Topic 6. Bioethical aspects in scientific work. Experimental research in veterinary medicine Basic requirements for conducting experimental research in veterinary medicine	2		2	6	2, 9
Topic 7. Features of experiments on large farms using productive animals.			1	6	9
Topic 8. Special methods used in veterinary medicine. Research modeling.	1		2	12	2, 8, 9, 10, 12-16
Topic 9. Industrial re-verification of research results. Methods for evaluating the effectiveness of home research results.	1		2	6	9
Topic 10. Statistical method of estimating measurements. Biometric processing of digital data results. Preparation of materials for			2	6	1, 4, 7, 9, 11

[1]Конкретне джерело із основної чи додатково рекомендованої літератури

publication.					
Total	8		16	66	

4. TEACHING AND TEACHING METHODS

MLOs	**Teaching methods (directed ctudy)**	**Hours**	**Learning methods (self-directed study)**	**Hours**
MLOs 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 statistics;	Verbal: lecture, software explanations and consultations. Explanatory-demonstrative method: constant explanation and demonstration of certain laboratory methods (illustrations, tables, slide shows) according to the lesson plan.	10	Partial search method - the student develops a certain topic, using a textbook, manuals, Internet - resource and more. Reproductive - used as a way to acquire practical research skills based on mastering the theoretical foundations of previously studied disciplines.	30
MLOs 2. - plan and conduct experimental research; - use modern methods of laboratory diagnostics in veterinary medicine; - to carry out biometric processing of the received data; - prepare reports of experiments and be able to interpret the results;	Verbal: lecture, software explanations and consultations. Explanatory-demonstrative method: constant explanation and demonstration of certain laboratory methods (illustrations, tables, slide shows, educational films) according to the lesson plan. Analytical - all data obtained during laboratory tests are analyzed	14	Partial search method - the student develops a certain topic, using a textbook, manuals, Internet - resource and more. Reproductive - used as a way to acquire practical research skills based on mastering the theoretical foundations of previously studied disciplines.	36

ASSESSMENT

5.1. Diagnostic assessment

5.2. Summative assessment

5.2.1. Intended learning outcomes methods:

№	**Summative assessment methods**	**Grades**	**Deadline**
1.	Thematic survey; Execution of tasks in laboratory-practical classes; Computer testing (multiple choice) in Model (MLOs 1)	35 / 35 %	According to the schedule
2.	Thematic survey; Execution of tasks in laboratory-practical classes; computer testing (multiple choice) in Moodle (MLOs2)	35 / 35 %	According to the schedule
3.	Independent work (Report with a presentation on the subject of independent study of the discipline, computer testing in	15/15%	During the semester

	Moodle)		
4.	Certification (testing in Model)	15/15%	Week 9
5.	Sum	100/100%	

5.2.2. Grading criteria

Summative assessment method	Unsatisfactory	Satisfactory	Good	Excellent
Thematic survey	*9 семестр <20 балів*	*22-25 балів*	*25-30 балів*	*35 балів*
	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	*9 семестр <20 балів*	*22-25 балів*	*25-30 балів*	*35 балів*
	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	*≤ 5 балів*	*6–9 балів*	*10–13 балів*	*14–15 балів*
	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 being 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 basic provisions 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 the correct

Design and presentation report of independently processed material	*≤ 5 балів*	*6–9 балів*	*10–13 балів*	*14–15 балів*
	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	Written survey after studying topics 2, 5, 8	During the lesson according to the schedule
2	Oral feedback while working on practical tasks	During the semester
3	Oral feedback from the teacher after the report with a presentation on the subject of independent study of the discipline	During the lesson

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

6. LEARNING RESOURCES (LITERACHA)

1. Erina A.M., Zakhozhai V.B., Erin D.L. (2004). Research Methodology: Textbook. - Kyiv: Center for Educational Literature, 212 p.
2. Klimenko M.O., Petruk V.G., Mokin V.B., Voznyuk N.M. (2012). Methodology and organization of scientific research: Textbook. Kherson: Oldi-plus. 474 p.
3. Konversky A.E., Lubsky V.I., Gorbachenko T.G., Bugrov V.A., Kondratieva I.V., Rudenko O.V., Yushtyn K.E. (2010). Fundamentals of methodology and organization of research: Teaching way. for students, cadets, graduate students and adjuncts. Kyiv: Center for Educational Literature. 352 p.
4. Krushelnytska O.V. (2009). Methodology and organization of scientific research: Textbook. - K.: Kondor. 206 c.
5. Stechenko D.M., Chmir O.S. (2007). Methodology of scientific research: textbook - [2nd ed.]. K.: Knowledge. 320 p.
6. Chornenky Ya.Ya. Chornenka N.V., Rybak S.B. (2006). Basics of the scientific research. Organization of independent and scientific work of the student: Textbook. K VD "Professional". 208 p.
7. Sheiko V.M., Kushnarenko N.M. (2008). Organization and methods of research: Textbook. - [2nd ed., Reworked. and ext.]. K.: Knowledge - Press. 310 p.

8. Yurinets V.E. (2011). Research methodology: a textbook. Lviv: LNU. 178 p.
9. Yablonsky V. Yablonska J., Plakhtiy P. (2001). Science. Fundamentals of research in animal husbandry and veterinary medicine: A textbook for the system of master's, postgraduate and doctoral studies. Kamyanets-Podilsky: Medobory. 244 p.

Additional sources

1. Goralsky L.P., Khomich V.T., Kononsky O.I. (2011). Fundamentals of histological technique and morphofunctional research methods in normal and pathology: Textbook. Zhytomyr: Polissya. 288 p.
2. Zon G.A., Ivanovska L.B., Vashchi E.V. (2016). Methodical instructions for conducting practical classes and organizing independent work on the subject "MO.I. (ethodology of Scientific Research" EQL "Master" of the Faculty of Veterinary Medicine on the topic: "Biometric processing of digital data in veterinary medicine using modern information technology". Sumy: SNAU. 27 p.
3. Meyer D. Harvey D. (2007). Veterinary laboratory medicine. Interpretation and diagnosis; 3rd ed. Per s Engl. M.: Sophion. 456 p.
4. Microbiological and virological research methods in veterinary medicine (reference manual). Ed. A.N. Golovko. Harkiv: NTMT, 2007. 512 p.
5. Basic methods of laboratory diagnosis of parasitic diseases. Geneva, WHO. 1994. 131 p.