

Ministry of Education and Science of Ukraine
Sumy National Agrarian University
Faculty of Veterinary Medicine
Department of virusology , patanatomy and poultry diseases

MODULE SYLLABUS

Organization and methods of scientific research

compulsory

(compulsory / optional)

Implemented in the

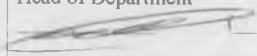
"Veterinary medicine" Academic Program

(name)

Area of specialization 211 " Veterinary Medicine "
(code, name)

at the second (master's 1.4) level of higher education



Author: Petrov R.V. 

Module syllabus agreed at the the Department of Virology, Pathoanatomy and Poultry Diseases	Minutes of "15" June 2022 № 12
	Head of Department <u>Petrov R.V. R</u> 

Approved by:

Guarantor of the Academic program  (O.I. Shkromada)

Dean of the Faculty  (O.L. Nechyporenko)

Syllabus review (attached) is provided by :  (T. Kozina)
 (O.I. Pecherina)

Representative of the Department of Education Quality assurance,
licensing and accreditation  (A. Gapanik)

Registered in electronic data base A. 06 2022

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

GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

1	Title	Organization and methods of scientific research			
2	Faculty/Department	Faculty of Veterinary Medicine / Department of Virology, Pathoanatomy and Poultry Diseases			
3	Type (compulsory or optional)	Mandatory / compulsory			
4	Program(s) to which module is attached (to be filled in for compulsory types)	21 1 Veterinary medicine .			
5	Module can be suggested for (to be filled in for optional types)				
6	Level of the National Qualifications Framework	Level 7			
7	Semester and duration of module	2 semester, 15 weeks 3 semester, 13 weeks			
8	ECTS credits number	5.0			
9	Total workload and time allotment	Contact work (classes)			Individual work
		Lectures	Practical / seminar	Laboratory	
		14	-	16	30
		12		26	52
10	Language of instruction	Ukrainian/ England			
11	Module leader	Dr. vet . Sciences , Professor Petrov RV			
	Module leader contact information	Corp. 3 cab . 71 ,Tel: 0663927928 ; viber 0663927928 Romanpetrov1978 @gmail.com			
12	Module description	The educational component studies the processing of scientific and technical information, preparation and conduct of experimental research, implementation of diagnostic tests and the principles of their validation , the structure of scientific work and its design, biometric processing of research results.			
13	Module aim	The purpose of teaching the discipline " Organization and methods of scientific research " is to form a system of special knowledge on scientific and technical information, preparation and conduct of experimental research, diagnostic tests and principles of their validation , structure of scientific work and its design, biometric processing of research results.			
14	Module Dependencies (prerequisites, co-requisites, incompatible modules)	The educational component is based on the study of OK: Internal diseases animal diseases Epizootology and infectious diseases			
15	Title	No manifestations of academic dishonesty are allowed during the study of OK . Plagiarism check algorithm systems are also tools for counteracting violations of academic integrity . In case of violations, the response is in accordance with the			

	NAU (https://snu.edu.ua/viddil-zabezpechennya-yakosti-osviti/zabezpechennya-yakosti-osviti/akademichna-dobrochesnist/). If a violation of academic integrity is detected, the completed task is not credited and is sent for re-execution.
16 Moodle	https://cdn.snu.edu.ua/moodle/course/view.php?id=3734

2. CORRELATION BETWEEN MODULE LEARNING OUTCOMES (MLOs) AND PROGRAM LEARNING OUTCOMES (PLOs)

OK learning outcomes: On successful completion of the module the learner will be able to:	Program learning outcomes to be achieved by the OK (indicate the number according to the numbering given in the OP)							As estimated by RND
	PLOs1	PLOs2	PLOs3	PLOs6	PLOs7	PLOs10	PLOs11	
MLOS 1. Basic research methods and their characteristics	+			+		+		survey of theoretical issues, performing tasks in laboratory-practical classes, testing, performing tasks of independent work
MLOS 2 Information support of scientific research.	+	+		+	+	+	+	survey of theoretical issues, performing tasks in laboratory-practical classes, testing, performing tasks of independent work
MLOS 3 Biological methods lit idzhen in veterinary medicine.	+		+	+	+	+	+	survey of theoretical issues, performing tasks in laboratory-practical classes, testing, performing tasks of independent work
MLOS4 Basic principles of scientific lit idzhen on animals.	+		+	+	+	+	+	survey of theoretical issues, performing tasks in laboratory and practical classes, testing, performing tasks of independent work
MLOS 5. Bacteriological and mycological studies	+	+		+			+	survey of theoretical issues, performing tasks in laboratory-practical classes, testing.

									independent work
MLOS 6. Immunological and virological methods in scientific research	+	+		+				+	survey of theoretical issues, performing tasks in laboratory-practical classes, testing, performing tasks of independent work
MLOS 7. The use of parasitological methods in research.	+							+	survey of theoretical issues, performing tasks in laboratory-practical classes, testing, performing tasks of independent work
MLOS 8. The use of biochemical methods in research	+	+						+	survey of theoretical issues, performing tasks in laboratory-practical classes, testing, performing tasks of independent work
MLOS 9. The use of toxicological methods in research.	+	+		+				+	survey of theoretical issues, performing tasks in laboratory-practical classes, testing, performing tasks of independent work
MLOS 10. Use of histological and histochemical methods in scientific research.	+	+		+				+	survey of theoretical issues, performing tasks in laboratory-practical classes, testing, performing tasks of independent work

3. MODULE INDICATIVE CONTENT

Autumn semester

Topic	Distribution of hours		Recommended Books
	Directed study	Self-directed study	

Topic 1. The main methods of scientific research and their characteristics. System of research methods. General scientific methods. Specific scientific (interdisciplinary and special) methods. Metodolohiya and methods of scientific research.	2	4	6	4,5,18, 19
Topic 2. Information support of scientific research. Essence and types of scientific and technical information. Methods of searching and collecting scientific information. Methods of obtaining and systematizing information. Analysis and interpretation of information. Organization of work with scientific literature. Forms of exchange of scientific information. Rules for compiling a bibliographic description (DSTU 7: 1: 2006; DSTU 8302: 2015)	2	4	6	2,6,7,18,19
Topic 3. Biological research methods in veterinary medicine. Statistical method of measurement evaluation. Biometric processing of digital data results. Safety precautions and measures to prevent human infection with pathogens. Studies in vitro, in vivo. Research modeling.	4	4	6	2,6,7,18,19
Topic 4. Basic principles of animal research. Bioethical aspects in scientific work. Personal safety when working with laboratory animals. Types of laboratory animals, basic requirements for laboratory animals and their content. Basic techniques of working with laboratory animals. Experiments using productive animals. Staging a bioassay and its significance in experimental and diagnostic studies. Alternative research methods. Basic requirements for conducting experimental research in veterinary medicine	2	2	6	1,4,6,11,12,18, 19
Topic 5. Bacteriological and mycological studies. Rules for organizing work in veterinary microbiological laboratories. Safety precautions and measures to prevent human infection with pathogens. Sampling and transportation of material for microbiological, virological and serological tests. Technique of cultivation of bacteria and fungi. Microscopic examinations (in the dark field, phase-contrast and anoptral microscopy, luminescent, electron). Determination of sensitivity, resistance and tolerance of microorganisms to antibiotics and chemotherapeutic drugs by serial dilutions, disco-diffusion method, using nutrient media. Methods of cultivation of aerobes, anaerobes, long-term storage of microorganisms. Biological samples; use of ELISA, PCR, PMA, RID in the diagnosis of animal diseases	2	2	6	4,12,18,19
	14	16	30	
Topic 6. Immunological and virological methods in scientific research. Technique of isolation and cultivation of viruses on laboratory animals, in cell culture, chicken embryos; indication (finding) of viruses in cell culture; use of diagnostic immunological tests (RA, RAP, RNGA, RP, RDP, RID, RN, RGA, RTGA, RZK, methods of immunofluorescence, immunoelectrophoresis, radioimmuno assay, ELISA, PCR). Technique of material research in phase-contrast, luminescent and electron microscope. List of infectious	2	4	12	1,4,13,18,19

international trade. Principles of validation of diagnostic tests for infectious diseases. The use of ELISA in the diagnosis of animal diseases. The use of PCR in the diagnosis of animal diseases. The use of RID in the diagnosis of bovine leukemia. The use of PMA in the diagnosis of leptospirosis.				
Topic 7. The use of parasitological methods in research. Determination of the intensity and extent of the invasion. Immunobiological diagnosis of parasitic diseases. Special methods of research of parasitosis of animals.	2	6	10	11,12,18,19
Topic 8. The use of biochemical methods in research. Determination of biochemical blood constants of different species of animals. Determination of biochemical parameters of urine of different animals. Evaluation based on the results of biochemical studies of the general condition of the organism. Biochemical indicators of the functional state of the liver, kidneys, pancreas. Study of factors of nonspecific resistance of an organism. Study of cellular and humoral immunity.	2	6	10	3,18,19
Topic 9. The use of toxicological methods in research. Determination of acute and chronic toxicity of drugs. Cumulative effect of drugs. Pharmacokinetics, biotransformation of drugs and intoxication of animals. Methods for determining the general toxicity of feed and feed additives. Determination of chronic toxicity of drugs: blood tests and hematopoiesis; immunological parameters and tests. Toxicity studies when applied to the skin and determination of skin resorptive and local action. Pathomorphological studies for the study of various actions of drugs. Establishing the safety of veterinary drugs and feed additives. Toxicological studies to determine the toxicity of feed and feed additives. Cell culture is a biological model for toxicological control of veterinary drugs. Basic principles of testing drugs and feed additives. Toxicological control of drugs using ciliates. Detection of embryotoxicity and teratogenic effects of veterinary drugs. Mutagenicity study of veterinary drugs. Physico-chemical methods for the determination of mycotoxicosis. ELISA for the determination of mycotoxicosis. Establishing the toxicity of vaccines, toxoids. Detection of allergic reactions and pyrogenicity to the action of drugs. Control of microbial contamination of non-sterile dosage forms. Generalizations to determine the safety of veterinary drugs.	4	4	10	2, 21, 22
Topic 10. The use of histological and histochemical methods in research. Histological, histochemical, immunohistochemical studies. Selection, fixation and transfer of pathological material for histological examinations; techniques for making paraffin, celluloid sections, their dyeing and canning, material fixation technique and preparation for histological and immunohistological examinations; preservation and preservation of samples of biological material obtained as a result of experiments.	2	6	10	3, 18, 19
	12	26	52	
Total	26	42	82	150

4. METHODS OF TEACHING AND TEACHING

MLOs	Teaching methods (directed study)	Hours	Learning methods (self-directed study)	Hours
<p>MLOs 1</p> <p>Basic methods of scientific research and their characteristics .</p>	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> story, explanation, conversation (heuristic and reproductive), lecture, instruction <i>Visual:</i> demonstration, illustration, observation. Active methods: (use of technical teaching aids, use of training and control tests) Interactive teaching methods: (use of multimedia technologies, spreadsheets.</p>	4	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation. Teaching methods by the nature of the logic of cognition (<i>analytical, synthesis methods, and inductive method, deductive method, translational method</i>). Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research). Interactive learning technologies (use of multimedia technologies, dialogue learning, student cooperation (cooperation)</p>	12
<p>MLOS 2</p> <p>Information support of scientific research</p>	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> story, explanation, conversation (heuristic and reproductive), lecture, instruction <i>Visual:</i> demonstration, illustration, observation Active methods: (use of technical teaching aids, use of training and control tests) Interactive teaching methods: (use of multimedia technologies, spreadsheets.</p>	4	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation. Teaching methods by the nature of the logic of cognition (<i>analytical, synthesis methods, and inductive method, deductive method, translational method</i>). Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research). Interactive learning technologies (use of multimedia technologies, dialogue learning, student cooperation (cooperation).</p>	12
<p>MLOS 3</p> <p>Biological research methods in veterinary medicine</p>	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> story, explanation, conversation (heuristic and reproductive).</p>	4	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes). <i>Visual:</i></p>	12

	<p>lecture, instruction</p> <p><i>Visual:</i> demonstration, illustration, observation.</p> <p>Active methods: (use of technical teaching aids, use of training and control tests)</p> <p>Interactive teaching methods: (use of multimedia technologies, spreadsheets)</p>		<p>observation.</p> <p>Teaching methods by the nature of the logic of cognition (<i>analytical, synthesis methods, and inductive method, deductive method, translational method</i>)</p> <p>Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research).</p> <p>Interactive learning technologies (use of multimedia technologies, dialogue learning, student cooperation (cooperation)</p>	
<p>MLOS4</p> <p>Basic principles of animal research.</p>	<p>Methods of teaching by source of knowledge:</p> <p><i>Verbal:</i> story, explanation, conversation (heuristic and reproductive), lecture, instruction.</p> <p><i>Visual:</i> demonstration, illustration, observation.</p> <p>Active methods: (use of technical teaching aids, use of training and control tests)</p> <p>Interactive teaching methods: (use of multimedia technologies, spreadsheets.</p>	4	<p>Methods of teaching by source of knowledge:</p> <p><i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation.</p> <p>Teaching methods by the nature of the logic of cognition (<i>analytical, synthesis methods, and inductive method, deductive method, translational method</i>)</p> <p>Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research).</p> <p>Interactive learning technologies (use of multimedia technologies, dialogue learning, student cooperation (cooperation)</p>	12
<p>MLOS 5.</p> <p>Bacteriological and mycological studies</p>	<p>Methods of teaching by source of knowledge:</p> <p><i>Verbal:</i> story, explanation, conversation (heuristic and reproductive), lecture, instruction.</p> <p><i>Visual:</i> demonstration, illustration, observation.</p> <p>Active methods: (use of technical teaching aids, use of training and control tests)</p> <p>Interactive teaching methods: (use of multimedia technologies,</p>	4	<p>Methods of teaching by source of knowledge:</p> <p><i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation.</p> <p>Teaching methods by the nature of the logic of cognition (<i>analytical, synthesis methods, and inductive method, deductive method, translational method</i>).</p> <p>Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games,</p>	12

	spreadsheets.		Interactive learning technologies (use of multimedia technologies, dialogue learning, student cooperation (cooperation)	
MLOS 6. Both immunological and virological methods in scientific research	Methods of teaching by source of knowledge: <i>Verbal:</i> story, explanation, conversation (heuristic and reproductive), lecture, instruction. <i>Visual:</i> demonstration, illustration, observation. Active methods: (use of technical teaching aids, use of training and control tests) Interactive teaching methods: (use of multimedia technologies, spreadsheets.	4	Methods of teaching by source of knowledge: <i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation. Teaching methods by the nature of the logic of cognition (<i>analytical, synthesis methods, and inductive method, deductive method, translational method</i>) Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research). Interactive learning technologies (use of multimedia technologies, dialogue learning, student cooperation (cooperation)	12
MLOS 7. Special methods of research of parasitosis of animals.	Methods of teaching by source of knowledge: <i>Verbal:</i> story, explanation, conversation (heuristic and reproductive), lecture, instruction. <i>Visual:</i> demonstration, illustration, observation. Active methods: (use of technical teaching aids, use of training and control tests) Interactive teaching methods: (use of multimedia technologies, spreadsheets.	4	Methods of teaching by source of knowledge: <i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation. Teaching methods by the nature of the logic of cognition (<i>analytical, synthesis methods, and inductive method, deductive method, translational method</i>) Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research). Interactive learning technologies (use of multimedia technologies, dialogue learning, student cooperation (cooperation)	16

<p>MLOS8. The use of biochemical methods in research</p>	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> story, explanation, conversation (heuristic and reproductive), lecture, instruction. <i>Visual:</i> demonstration, illustration, observation. Active methods: (use of technical teaching aids, use of training and control tests) Interactive teaching methods: (use of multimedia technologies, spreadsheets.</p>	<p>4</p>	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation. Teaching methods by the nature of the logic of cognition (<i>analytical, synthesis methods, and inductive method, deductive method, translational method</i>). Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research). Interactive learning technologies (use of multimedia technologies, dialogue learning, student cooperation (cooperation)</p>	<p>8</p>
<p>MLOS 9 The use of toxicological methods in research</p>	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> story, explanation, conversation (heuristic and reproductive), lecture, instruction. <i>Visual:</i> demonstration, illustration, observation. Active methods: (use of technical teaching aids, use of training and control tests) Interactive teaching methods: (use of multimedia technologies, spreadsheets.</p>	<p>4</p>	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation. Teaching methods by the nature of the logic of cognition (<i>analytical, synthesis methods, and inductive method, deductive method, translational method</i>). Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research). Interactive learning technologies (use of multimedia technologies, dialogue learning, student cooperation (cooperation)</p>	<p>8</p>
<p>MLOS 9 Use of histological and histochemical methods in scientific research</p>	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> story, explanation, conversation (heuristic and reproductive), lecture, instruction. <i>Visual:</i> demonstration, illustration, observation. Active methods: (use of technical teaching aids, use of training and</p>	<p>2</p>	<p>Methods of teaching by source of knowledge: <i>Verbal:</i> work with a book (reading, translation, writing, taking notes, making tables, graphs, reference notes), <i>Visual:</i> observation. Teaching methods by the nature of the logic of cognition (<i>analytical, synthesis methods, and inductive method, deductive</i></p>	<p>8</p>

	Interactive teaching methods: (use of multimedia technologies, spreadsheets.		Active methods (brainstorming, crossword puzzles, debates, round tables, binary classes, business and role-playing games, group research). Interactive learning technologies (use of multimedia technologies, dialogue learning, student cooperation (cooperation)
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5. EVALUATION BY EDUCATIONAL COMPONENT

5.1. Diagnostic evaluation (indicated if necessary)

5.2. Summative assessment

5.2.1. To assess the expected learning outcomes provided

Nº	Methods of summative evaluation	Points / Weight in the overall score	Date of compilation
1.	Thematic survey	20 points / 20%	Weekly
2.	Execution of tasks in laboratory- practical classes	20 points / 20%	According to the schedule
3.	Testing	15 points / 15%	For 7-8 weeks
4.	Report with a presentation on the subject of independent study of the discipline	45 points / 45%	According to the schedule of delivery of modules

5.2.2. Evaluation criteria

Component[1]	Unsatisfactorily	Satisfactorily	Okay	Perfectly[2]
Thematic survey	<12 points	12-15 points	15-18 points	20 points
	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	All requirements of the task are fulfilled, creativity, thoughtfulness is shown, own solution of a problem is offered
Execution of tasks in laboratory- practical classes	<12 points	12-15 points	15-18 points	20 points
	Task requirements not met	Most of the tasks are performed using the basic theoretical principles, the student has difficulty explaining the rules for solving laboratory-practical problems. Execution of individual control tasks is significantly formalized, there is no deep understanding of the work	The student has mastered the basic material, and understands and performs laboratory-practical tasks, has suggestions for the direction of their solutions. Understands the main provisions that are	The applicant implements the theoretical material of the discipline in the performance of laboratory and practical work, is able to analyze

			decisive in the course, can solve similar problems with those discussed with the teacher, but allows a small number of inaccuracies.	and compare the results obtained on the basis of knowledge acquired from this discipline, skills, practical skills
Multiple selection test	<i>≤ 5 points</i>	<i>6-9 points</i>	<i>10-13 points</i>	<i>14-15 points</i>
	The student gives the correct answer to several questions (< 33% of the correct answers).	The student has some knowledge provided in the program of the discipline, has the basic provisions 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 correct answers).
Design and presentation report of independently processed material	<i>< 9 points</i>	<i>10-19 points</i>	<i>20-39 points</i>	<i>40-45 points</i>
	The integrity of the student's understanding of the material on the discipline is lacking. 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 worked, the student worked passively.	Knows the basic provisions that are crucial in performing independent work / individual tasks. Errors in the answers are not significant.	All requirements, tasks are fulfilled, creativity, thoughtfulness is shown, own solution of a problem is offered.

5.3. Formative assessment:

To assess current progress in learning and understanding areas for further improvement

No	Elements of formative assessment	Date
1	Oral feedback after studying the topics 1,2,3,4,5,6,7,8	2,4,6,8,10,12,14,15 weeks of the semester
2	Written feedback after studying topics 1-3, 4-8	8, 15 weeks of the semester
3	Written feedback from the teacher while working on laboratory-	Within 1 week after execution

	practical tasks	
4	Oral feedback from the teacher after the story with a presentation on the topic of independent study of the discipline	During classes

6. LEARNING RESOURCES (LITERATURE)

Methodical support

- Zem (I.A) Methodical instructions for conducting practical classes and organizing independent work on the subject "Research Methodology" for students majoring in 8.110101 "Veterinary Medicine" EQL "Master" of the Faculty of Veterinary Medicine on the topic: "Biometric digital data processing in veterinary medicine using modern information technology" / (I.A Zem, I.B Ivanovskaya, BV Baranek. - Sumy, 2016. - 27 p
- Research methodology. Lecture notes for students majoring in 8.110101 "Veterinary Medicine" EQL "Master" (SNAU, FVM, p. №2 from 26.11.2014)
- Research Methodology. Methodological support for conducting practical classes for students majoring in 21 "Veterinary Medicine" ICL "Master" (SNAU, FVM, p. №2 from 23.11.2016).
- Research methodology. Methodological support for independent work of students majoring in 21 "Veterinary Medicine" ICL "Master" (SNAU, FVM, p. № 1 from 23.11.2016).

Recommended Books

Basic

- Bilukha MI Fundamentals of scientific research / MI Bilukha. - K.: Higher school. - 1997. - 271 p.
- Yerina AM Research methodology: a textbook / A.M. Yerina. - V.B. Chornin, D.L. Erin. - Kyiv: Center for Educational Literature, 2004. - 112 p.
- Klimenko MO Methodology and organization of scientific research: Textbook / MO Klimenko, VG Petruk, VB Mokin, NM Wozniuk. - Kharkov: Uchebna, 2012. - 474 p.

Auxiliary

- Baskakov A.Ya. Methodology of scientific research / Uchebnoe posobie / A.Ya. Baskakov, NV Tyulenkov. - K.: MAU, 2004. - 216 c.
- Volkova ES Methods of scientific research in veterinary medicine / E.S. Volkova, VN Baifmarov. - M.: Kolos, 2010. - 183 c.
- Горальский И.И. Fundamentals of histological techniques and morphofunctional research methods in normal and pathology. Textbook / I.I. Goralskiy, B.I. Khomich, O.I. Kononenko. - Zhytomyr: Polissya, 2011. - 288 p.
- Preclinical studies of veterinary drugs / Ya. Kotayumbay, O.I. Malik, IP Pateroga and others. - Ed. AND I. Kotayumbay. - Lviv: Truva, 2006. - 360 p.
- Ymnunologicheskiye metody (Under Ed. Pyrnalya, per. Seo Nam). - AP Tarasov. - M.: Medicine, 1987. - 472 p.
- Animal cell culture: Methods. - also with English / Under Ed. R. Freshney. - M.: Mirp, 1989. - 333 c.
- Criteria and methods of control metabolism in a organism animals and birds / Y.A. Ionov, S.O. Ivanovskaya, B.B. Rudenko et al. - Kharkov: Institute of Animal Husbandry NAAS, 2011. - 376 p.
- Kuznetsov IN Scientific works: methods of preparation and design / IN Kuznetsov. - Mn.: Amalfeya, 2000. - 544 p.
- Laboratory tests in veterinary medicine. Vyruchnia, rykhotnyoznaie and parazytnaie disease. Directory / Under Ed. WOULD. Antonova. - M.: Agropromizdat, 1987. - 240 p.
- Laboratory tests in veterinary medicine. Bakteryialnaie infektsii. Directory / Under Ed. WOULD. Antonova. - M.: Agropromizdat, 1986. - 352 p.
- Laboratory research in Veterinary Medicine: hymykologicheskyye metody. Handbook / Under Ed. WOULD. Antonova. - M.: Agropromizdat, 1989. - 100 p.

19. Laboratory research in Veterinary Medicine : bykhymnycheskye and mykolohycheskye : Directory / Under Ed. WOULD. Antonova: M Agropromizdat , 1991. - 287 p.
20. Lakin GF Biometry : a textbook for universities and pedagogical institutes / G.F. Lakin. - M Higher school, 1973. - 343p.
21. Lomakin MS Immunological supervision / MS Lomakin. - M.: Медицина, 1990. - 256 с.
22. Ludchenko AA Fundamentals of scientific research : a textbook / AA Ludchenko, Ya.A. Лудченко, Т.А. Примак. - [2nd ed., P.]. - К.: Общество "Знания", КОО, 2001. - 113 с.
23. Microbiological and virological research methods in veterinary medicine (reference manual). Under Ed. A.N. Head. - H.: NTMT, 2007. - 512 p.
24. Meyer D. Veterinary laboratory medicine. Interpretation and diagnosis ; 3rd ed. Per s Engl. / D. Meyer, D. Harvey. - M.: Софион, 2007. - 456 с.
25. Petukhov VA Veterinary genetics with the basics of variation statistics / V.A. Petukhov, AI Жиглачев, Г.А. Nazarova. - M.: Agropromizdat, 1985. - 368 p.
26. Theoretical and praktycheskye problems hmotyolohyy / Under Ed. acad. - VASHNIL VP Shishkova, acad. AMN Yu.F. Isakova. - M.: Agropromizdat, 1986. - 239 p.
27. Chornenky Ya Ya. Basics of the scientific research Organization of independent and scientific work of the student. Textbook / [Ya Ya. Chornenky, NV Chornenko, SB Rybak, etc.]. - K.: VD "Professional", 2006. - 208 p.
28. Shatko VM Organization and methods of research: Textbook / V.A. Shatko, N.M. Kushmareno. - [2nd ed., Reworked and ext.]. - K.: Knowledge - Press, 2008. - 310 p.
29. Yablonsky V. Science. Fundamentals of research in animal husbandry and veterinary medicine: A textbook for the system of master's, postgraduate and doctoral studies. /IN. Yablonsky, O. Yablonska, P. Plakhtiy. - Kamyanets-Podilsky: Medobory, 2001. - P. 135-227.

Information resources

30. http://www.ritpress.ru/med/book/int_med/index.htm
31. <http://www.jalons.com/libreria.html>
32. <http://www.mlink.net/veterinet/>
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