

Документ подписан простой электронной подписью
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**Federal State Autonomous Educational Institution of
higher education "Peoples' Friendship University of Russia" RUDN University"
Agrarian Technological Institute**

(name of the main educational unit (MEU) - the developer of the postgraduate program)

Department of Veterinary Medicine

(name of the basic educational unit (BEU) - the developer of the postgraduate program)

WORKING PROGRAM OF THE DISCIPLINE

Research Methodology

(name of discipline/module)

Scientific specialty:

4.2.1. Animal pathology, morphology, physiology, pharmacology and toxicology

(code and name of scientific specialty)

The development of the discipline is carried out as part of the implementation of the postgraduate program:

Animal pathology, morphology, physiology, pharmacology and toxicology

(name of postgraduate program)

2022

1. THE PURPOSE OF MASTERING THE DISCIPLINE

The purpose of mastering the discipline "Methodology of scientific research" is to give graduate students fundamental knowledge about the use of research methods in veterinary medicine and animal science.

2. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE

Mastering the discipline "Methodology of scientific research" is aimed at studying the fundamental knowledge about the use of scientific research methods in veterinary medicine and zootechnics.

As a result of studying the discipline, the student must:

Know:

- the importance of organizing scientific research in the development of veterinary medicine and modern animal husbandry.
- basic methods of biological research.
- types of zootechnical experiments, features of the conditions for conducting a zootechnical experiment.
- types of experiments in veterinary medicine, features of the conditions for conducting a veterinary experiment
- the main elements of the methodology of biological research.
- technique of bookmarking and conducting experiments in veterinary medicine and zootechnics.
- methods and techniques for setting up experiments.

Be able to:

- handle information technology equipment.
- work with modern software products.
- to explore the elementary factors of life, the interaction between factors.
- to determine the types of veterinary and zootechnical experiments, the organization and features of conducting experiments on various types of domestic and farm animals.
- select objects for research.
- develop research methods and a work plan for scientific research, maintain primary documentation.
- to carry out mathematical analysis of experimental data, to formulate conclusions and justifications for them.
- to establish a connection of the studied material with other disciplines.
- apply the acquired knowledge in practical and scientific activities.

Own:

- specific theoretical knowledge in the discipline.
- modern methods and ways of organizing the experiment.
- modern information and innovative technologies.

3. VOLUME OF DISCIPLINE AND TYPES OF EDUCATIONAL WORK

The total labor intensity of the discipline "Methodology of scientific research" is 1 credit unit.

Table 4.1. Types of educational work by periods of mastering the postgraduate program

Type of study work	TOTAL,ac.h.	Course			
		1	2	3	4
<i>Contact work, ac.h.</i>					
including:					
Lectures (LC)	12	12			
Laboratory work (LW)					
Practical/seminar sessions (SS)	6	6			
<i>Independent work of students, ac.h.</i>	18	18			
<i>Control (test with assessment), ac.h.</i>					
The total complexity of the discipline	ac.h.	36	36		
	credit	1	1		

5. CONTENT OF THE DISCIPLINE

Table 5.1. The content of the discipline (module) by type of educational work

Name of the discipline section	Contents of the section (topic)	Type of study work
Section 1. Significance, history and organization of scientific research in the development of veterinary medicine and modern animal husbandry. Basic methods of scientific research.	Topic 1.1. - Brief archaeological and historical review. Taming and domestication of animals. domestication changes.	LC
		LC
	Topic 1.2. Breeds of farm animals in the historical sequence of their development	LC
Section 2. Structure of the research process	Topic 2.1. The main stages of the experiment.	SS
	Topic 2.2. Sources of scientific information	SS
Section 3. Basic methodological techniques and methods for setting up experiments in biology.	Topic 3.1. The principle of comparison as a method of setting zootechnical experiments	SS
	Topic 3.2. Methods based on the principle of analogous groups	SS
	Topic 3.3. Methods based on the principle of period groups	SS
Section 4. Development of methodology and work plan for scientific research. Maintaining primary documentation	Topic 4.1. The choice of the method of setting up the experiment, the tasks set for the solution of the experiment, the requirements for the place of the experiment.	LC
	Topic 4.2. Basic documentation for accounting for primary data in a scientific experiment. Conditions that ensure the reliability of the results of the experiment.	LC

Name of the discipline section	Contents of the section (topic)	Type of study work
Section 5 Organization and features of conducting experiments on various types of domestic and farm animals	Topic 5.1. Organization and features of conducting experiments on various types of domestic and farm animals	LC
Section 6 Methods of mathematical processing of experimental data.	Topic 6.1. Methods of mathematical processing of experimental data in zootechnical and veterinary research	LC, SS
Section 7 Research report.	Topic 7.1. Scheme for writing a final qualification work and requirements for its main sections.	LC, SS

6. LOGISTICS AND TECHNICAL SUPPORT OF THE DISCIPLINE

Table 6.1. Logistics of discipline

Audience type	Audience equipment	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
Lecture	An auditorium for lecture-type classes, equipped with a set of specialized furniture; board (screen) and technical means of multimedia presentations.	Hall 1, 2 ATI Notebook, portable multimedia projector Casio XJ-M250 - 1 pc., Screen - 1 pc.
Seminar	An auditorium for conducting seminar-type classes, group and individual consultations, current control and intermediate certification, equipped with a set of specialized furniture and technical means for multimedia presentations.	Room 351 ATI A set of specialized furniture; Technical means: projector, personal computer. There is Internet access.
For independent work of students	An auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to the EIOS.	Room 351 ATI A set of specialized furniture; Technical means: projector, personal computer. There is Internet access.

* - the audience for independent work of students is required!

7. EDUCATIONAL-METHODOLOGICAL AND INFORMATION SUPPORT OF THE DISCIPLINE

Main literature:

1. Nikishov A.A. Mathematical support of the experiment in animal husbandry [Text]: Textbook / A.A. Nikishov. - 3rd ed., Rev. and additional - M. : Publishing House of RUDN University, 2014. - 215 p. : ill. - ISBN 978-5-209-05576-1: 132.85.

Additional literature:

1. Stepanov, V.G. Application of non-parametric statistics methods in agricultural biology and veterinary medicine research: textbook / V.G. Stepanov. - St. Petersburg: Lan, 2018. - 56 p. - ISBN 978-5-8114-3269-1. - Text: electronic // Electronic library system "Lan": [website]. - URL: <https://e.lanbook.com/book/111905>

2. Litvin, D.B. Elements of mathematical statistics: textbook / D.B. Litvin, O.N. Tavolzhanskaya. - Stavropol: SSAU, 2015. - 52 p. - Text: electronic // Electronic library system "Lan": [website]. - URL: <https://e.lanbook.com/book/82229>

3. Simonov G. Demographic and production indicators in agriculture / G. Simonov, V. Gurevich // The Economist. - 2013. - No. 4. - S. 85-87.

four. Khomenets N.G. Experiment planning. Some aspects of sensory analysis of food products: Methodical instructions / N.G. Khomenets. - M. : Publishing House of RUDN University, 2011. - 43 p. - 45.00. http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=368401&idb=0

5. Kononyuk A.E. Fundamentals of scientific research (General theory of experiment) [Electronic resource] . Book. 3 / A.E. Kononyuk. - Electronic text data. - Kyiv: Osvita Ukraini, 2011. - 455 p. : ill. - ISBN 966-96574-0-9 : 0.00. http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=447889&idb=0

Resources of the information and telecommunications network "Internet":

1. RUDN ELS and third-party ELS, to which university students have access on the basis of concluded agreements:

- RUDN Electronic Library System - RUDN ELS <http://lib.rudn.ru/MegaPro/Web>
- ELS "University Library Online" <http://www.biblioclub.ru>
- EBS Yurayt <http://www.biblio-online.ru>
- EBS "Student Advisor" www.studentlibrary.ru
- EBS "Lan" <http://e.lanbook.com/>
- EBS "Trinity Bridge"

2. Databases and search engines:

- electronic fund of legal and normative-technical documentation <http://docs.cntd.ru/>
- Yandex search engine <https://www.yandex.ru/>
- Google search engine <https://www.google.ru/>
- abstract database SCOPUS <http://www.elsevierscience.ru/products/scopus/>
 - www.cnshb.ru,
 - www.elibrary.ru,
 - www.vet.purdue.edu
 - www.allvet.ru,
 - www.glossary.ru
 - <https://www.ncbi.nlm.nih.gov/pubmed>
 - <http://www.uchvuz.ru>

- <http://www.veterinarka.ru>
- <https://www.medlit.biz>
- <http://effect3.ru>
- <https://cyberleninka.ru/>

Educational and methodological materials for independent work of students in the development of the discipline/module:*

1. A course of lectures on the discipline "Private animal husbandry, feeding, feed preparation technologies and livestock production."

2. Laboratory workshop on the discipline "Private zootechnics, feeding, feed preparation technologies and livestock production" (if laboratory work is available).

3. Nikishov A.A. Guidelines for statistical processing of experimental results [Text / electronic resource]: Guidelines / A.A. Nikishov. - Electronic text data. - M. : Publishing House of RUDN University, 2012. - 79 p. - ISBN 978-5-209-04681-3: 36.02. http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=396829&idb=0

* - all educational and methodological materials for independent work of students are placed in accordance with the current procedure on the page of the discipline in TUIS!

8. EVALUATION MATERIALS AND SCORE-RATING SYSTEM FOR ASSESSING THE LEVEL OF FORMATION OF COMPETENCES IN THE DISCIPLINE

Evaluation materials and a point-rating system for assessing the development of the discipline are presented in the Appendix to this Work Program of the discipline.

* - OM and BRS are formed on the basis of the requirements of the relevant local normative act of the Peoples' Friendship University of Russia.

DEVELOPERS:

Professor		Nikishov A.A.
_____ Position, BEU	_____ Signature	_____ Surname N.P.
_____ Position, BEU	_____ Signature	_____ Surname N.P.
_____ Position, BEU	_____ Signature	_____ Surname N.P.
HEAD OF BEU: Department of Veterinary Medicine		Vatnikov Yu.A.
_____ Name of BEU	_____ Signature	_____ Surname N.P.

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