

Документ подписан простой электронной подписью  
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**Federal State Autonomous Educational Institution of Higher Education "Peoples'  
Friendship University of Russia named after Patrice Lumumba"**

**Agrarian and Technological Institute**

(name of the main educational unit (MEU) – developer of the program)

**Department of Veterinary Medicine**

(name of the basic educational unit (BEU) – developer of the program)

**WORKING PROGRAM OF THE DISCIPLINE**

**Methodology of scientific research**

(name of discipline/module)

The discipline is mastered within the framework of the implementation of postgraduate programs in the following groups of scientific specialties:

**4.2. Animal science and veterinary science**

( code and name of the group of scientific specialties )

### 1. THE GOAL OF MASTERING THE DISCIPLINE

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

### 2. REQUIREMENTS TO THE RESULTS OF MASTERING THE DISCIPLINE

As a result of mastering the discipline "Methodology of scientific research", the postgraduate 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 conditions for conducting zootechnical experiments;

types of experiments in veterinary medicine, features of the conditions for conducting a veterinary experiment;

basic elements of biological research methodology;

techniques for laying and conducting experiments in veterinary science and animal husbandry;

methods and techniques for setting up experiments.

#### **Be able to:**

handle information technology equipment;

work with modern software products;

to study the elementary factors of life activity, interactions between factors;

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;

conduct a mathematical analysis of experimental data, formulate conclusions and justifications for them;

establish connections between the studied material and other disciplines;

apply the acquired knowledge in practical and scientific activities.

#### **Own:**

specific theoretical knowledge in the discipline;

modern methods and ways of organizing experiments;

modern information and innovative technologies.

### 3. SCOPE OF THE DISCIPLINE AND TYPES OF STUDY WORK

The total workload of the discipline "Methodology of Scientific Research" is 2 credit units (72 academic hours).

Type of academic work		Total, ac . h.	Semester
			1
<i>Contact work</i>		18	18
including:			
Lectures (LC)		12	12
Laboratory work (LW)		-	-
Practical/seminar classes (SZ)		6	6
<i>Independent work of students</i>		18	18
<i>Control (test with assessment)</i>		36	36
General complexity of the discipline	ak . h.	72	72

	. unit	2	2
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#### 4. CONTENT OF THE DISCIPLINE

Name of the discipline section	Section Contents (Topics)	Type of academic work
Section 1. The importance, history and organization of scientific research in the development of veterinary science and modern animal husbandry. Basic methods of scientific research	Topic 1.1. Brief archaeological and historical review. Domestication and domestication of animals. Domestication changes.	OK
	Topic 1.2. Breeds of farm animals in the historical sequence of their development	OK
Section 2. Structure of the research process	Topic 2.1. Main stages of the experiment.	SZ
	Topic 2.2. Sources of scientific information	SZ
Section 3. Basic methodological techniques and methods for setting up experiments in biology.	Topic 3.1. The principle of comparison as a method for setting up zootechnical experiments	SZ
	Topic 3.2. Methods based on the principle of analogous groups	SZ
	Topic 3.3. Methods based on the principle of period groups	SZ
Section 4. Development of methodology and work plan for scientific research. Maintaining primary documentation	Topic 4.1. Selecting the method for setting up an experiment, the tasks set for solving the experiment, and the requirements for the location of the experiment.	OK
	Topic 4.2. Basic documentation for recording primary data in a scientific experiment. Conditions that ensure the reliability of the experimental results.	OK
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	OK
Section 6. Methods of mathematical processing of experimental data.	Topic 6.1. Methods of mathematical processing of experimental data in zootechnical and veterinary research	LK, SZ
Section 7. Research report.	Topic 7.1. Outline of writing a final qualifying work and requirements for its main sections.	LK, SZ

#### 5. LOGISTIC AND TECHNICAL SUPPORT OF DISCIPLINE

Audience type	Equipping the auditorium	Specialized educational/laboratory equipment, software and materials
Lecture	An auditorium for conducting lecture-type classes, equipped with a set of specialized furniture; a board (screen) and technical means for multimedia presentations.	No
Seminar	An auditorium for conducting seminar-type classes, group and individual consultations, ongoing monitoring and midterm assessment, equipped with a set of specialized furniture and technical means for multimedia presentations	No

For independent work of students	A classroom for independent work of students (can be used for conducting seminars and consultations), equipped with a set of specialized furniture and computers with access to the EIS	No
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## 6. EDUCATIONAL, METHODOLOGICAL AND INFORMATIONAL SUPPORT OF THE DISCIPLINE

### *Main literature:*

Nikishov A.A. Mathematical support for experiments in animal husbandry [Text ]: Textbook / A.A. Nikishov. - 3rd ed., corrected . and additional. - M.: RUDN University Press, 2014. - 215 p.: ill. - ISBN 978-5-209-05576-1: 132.85.

### *Further reading:*

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

Litvin, D.B. Elements of Mathematical Statistics: a tutorial / D.B. Litvin, O.N. Tavalzhanskaya. - Stavropol: StSAU, 2015. - 52 p. - Text: electronic // Electronic library system "Lan": [site]. - URL: <https://e.lanbook.com/book/82229>

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

Khomenets N.G. Experimental planning. Some aspects of sensory analysis of food products: Methodical instructions / N.G. Khomenets. - M.: RUDN University Press, 2011. - 43 p. - 45.00. [http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=368401&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=368401&idb=0)

Kononyuk A.E. Fundamentals of Scientific Research (General Theory of Experiment) [Electronic resource ]. Book 3 / A.E. Kononyuk. - Electronic text data. - Kiev: Education Ukraine, 2011. - 455 p.: ill. - ISBN 966-96574-0-9: 0.00.

URL: [http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn\\_FindDoc&id=447889&idb=0](http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=447889&idb=0)

### *Resources of the information and telecommunications network "Internet":*

RUDN University Electronic Library System and third-party electronic library systems to which university students have access on the basis of concluded agreements:

- Electronic library system of RUDN: [site]. URL: <http://lib.rudn.ru/MegaPro/Web>
- Electronic library system "University Library Online": [website]. URL: <http://www.biblioclub.ru/>
- Educational platform " Urait " : [website ]. URL : <https://urait.ru/>
- Electronic Library System "Lan": [site]. URL : <https://e.lanbook.com/>

### *Databases and search engines:*

- Electronic fund of legal and normative-technical information: [site]. URL: <https://docs.cntd.ru/>
- Search engine "Yandex": [site]. URL : <https://yandex.ru/>
- Search engine « Google »: [site]. URL : <https://www.google.com/>

### *Educational and methodological materials for independent work of students in mastering a discipline/module :*

A course of lectures on the subject "Methodology of scientific research".

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

## 7. EVALUATION MATERIALS AND SCORE-RATING SYSTEM FOR ASSESSING THE LEVEL OF DEVELOPMENT OF COMPETENCES IN THE DISCIPLINE

Assessment materials and the point -rating system for assessing the mastery of the discipline are presented in the appendix to this work program of the discipline.

**DEVELOPERS:**

Associate Professor of the Department of  
Veterinary Medicine

**HEAD OF THE BUP**

Director of the Department  
of Veterinary Medicine



A. A. Nikishov

Yu. A. Vatnikov