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Ministry of Agriculture of the Russian Federation
Federal State Budgetary Educational Institution
of Higher Education
"St. Petersburg State University of Veterinary Medicine"

APPROVED BY
Vice-Rector for Educational
Work and Youth Policy
Sukhinin A.A.
April 10, 2026

**Department of Pathological Physiology**
**EDUCATIONAL WORK PROGRAM**

**for the discipline**

# "METHODOLOGY OF THE SCIENTIFIC RESEARCH"

**The level of higher education**
**SPECIALIST COURSE**

**Specialty 36.05.01 Veterinary Medicine**
**Profile: "General Clinical Veterinary Medicine"**
**Full-time education**
Education starts in 2026

Reviewed and accepted
at a meeting of the department
on April 7, 2026
Protocol No. 8
Head of the department
of pathological physiology
Doctor of Veterinary Science, Professor
O.V. Kryachko

Saint Petersburg
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## 1. AIMS AND OBJECTIVES OF THE DISCIPLINE

**Aim:**

The purpose of the discipline "Methodology of scientific research" is to prepare a future veterinarian with theoretical and practical skills to successfully resolve issues related to conducting scientific experimental clinical morphological studies. Familiarization with laboratory utensils and equipment for research.

A necessary condition for solving these problems is the clear organization and implementation of the stages of statistical research. Therefore, it is necessary to learn the basic rules and procedure for such work. Learn how to draw up a program of statistical research, determine the volume of observations, conduct development, summary and analysis of the material.

Ensure that students master the basic concepts of the theory of solving inventive problems and patent science to broaden their horizons, develop scientific thinking; develop students' ability to navigate scientific information for their implementation in practice, in particular in the field of veterinary medicine.

Students will be familiarize with the structure of the library, methods of bibliographic search, catalogs and file cabinets, bibliographic description of primary sources, design of lists of used literature for scientific works.

**Tasks:**

- to improve research methodology, development and implementation of innovative technologies in the field of veterinary medicine and animal husbandry;
- to collect scientific information, preparation of reviews, annotations, compilation of abstracts and reports, bibliographies, analysis of information on research objects;
- to participate scientific discussions and procedures for the protection of scientific works of various levels;
- to present reports on research topics, dissemination and popularization of professional knowledge, educational work with students;
- to analyze the state and dynamics of objects of activity, development of plans, programs and methods of research, analysis of their results.
- to acquaintance with such an important issue as the protection of intellectual property, the law of the Russian Federation on copyright and related rights.

## 2. THE LIST OF THE PLANNED RESULTS OF THE DISCIPLINE (MODULE), CORRELATED WITH THE PLANNED RESULTS OF THE REALISED EDUCATIONAL PROGRAM

As a result of development the discipline, the student prepares for the following types of activities, in accordance with the educational standard of the Federal State Educational Standard 36.05.01 "Veterinary."

Types of professional activity:

scientific and educational activities:

- to improve research methodology, development and implementation of innovative technologies in the field of veterinary medicine and animal husbandry;
- to collect scientific information, preparation of reviews, annotations, compilation of abstracts and reports, bibliographies, analysis of information on research objects;
- to participate scientific discussions and procedures for the protection of scientific works of various levels;
- to present reports on research topics, dissemination and popularization of professional

**The student's competencies formed (acquired) as a result of mastering the discipline**

The education of the discipline should form the following competencies:

**A) Universal competencies**

UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation.
UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis.
UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.
UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.
**UC-2. Is able to manage the project at all stages of life cycle**
UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.
UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.
UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.
**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**
UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.
UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.
UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status.

## 3. THE PLACE OF DISCIPLINE IN THE STRUCTURE OF THE MPEP

3.1. The discipline of the B1.V.19 "Methodology of scientific research" refers to the part formed by participants in educational relations of the federal state educational standard of higher education in the specialty 36.05.01 "Veterinary" (specialist level).

It is mastered in the 5th semester in full-time form of education.

3.2. By study this discipline, needs the following knowledge, skills and abilities formed by previous disciplines:

Philosophy; Jurisprudence; Veterinary legislation of the Russian Federation; Informatics, Fundamentals of Mathematical Biostatistics; Instrumental diagnostic methods; Computerization in veterinary medicine.

Knowledge: scientific, philosophical pictures of the world; the interaction of the spiritual and bodily, biological and social in a person, his attitude to nature and society; basic principles and provisions of state and administrative legislation of the Russian Federation,

fundamental laws, legal acts, rules and regulations in the field of veterinary medicine; foreign language in the field of professional communications, Latin veterinary terminology to the extent necessary for the possibility of obtaining professional information from domestic and foreign sources.

Skills: to independently analyze and evaluate social information, rules of behavior and corporate ethics; plan and carry out its activities taking into account this analysis; build and maintain working relationships with other members of the team.

Skills: to speak a foreign language in the amount of at least 4000 lexical units, it is necessary for professional communication, obtaining information from foreign sources; skills of written reasoned presentation of one's own point of view; public speech, argumentation, debating and polemic skills; Latin in the amount necessary to study the discipline.

3.3. The list of subsequent training disciplines that require knowledge, skills and abilities formed by this training discipline:

-Internal non-contagious diseases
-Operative surgery with topographic anatomy
-General and private surgery
-Acupressure and gynecology
-Parasitology and invasive diseases
-Epizootology and infectious diseases
- Pathological anatomy
- Veterinary and sanitary examination
-Organization of veterinary affairs

## 4. SCOPE OF DISCIPLINE " METHODOLOGY OF THE SCIENTIFIC RESEARCH"

### 4.1. SCOPE OF DISCIPLINE " METHODOLOGY OF THE SCIENTIFIC RESEARCH" FOR FULL-TIME EDUCATION

| Type of educational work | Total | Semester |
|---|---|---|
| | | 5 |
| **Classroom classes (total)** | **18** | **18** |
| Including: | - | |
| Practical lessons (PL), including interactive forms, among which are: | 18 | 18 |
| Practical training (PT) | 4 | 4 |
| **Self-study (total)** | **54** | **54** |
| **Essay** | + | + |
| Type of intermediate and final certification (test, exam) | | **Test** |
| **Total labor intensity** hours/credits | **72/2** | **72/2** |

## 5. THE CONTENT OF THE DISCIPLINE " METHODOLOGY OF THE SCIENTIFIC RESEARCH"

### 5.1. The content of the discipline" Methodology of the scientific research "

### (full-time education)

| | The title | Achieved competences | Types of academic work, including students' self-study and labor intensity (in hours) | | |
|---|---|---|---|---|---|
| | | | Practical lessons | Practical training | Self-study |
| 1. | Subject and basic concepts of the discipline Methodology of scientific research. Science and the concept of scientific research. History of science | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.<br>**UC-6. Is able to determine and implement the private priorities activities and ways to improve them** | 1 | | 4 |

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| | | **based on self-assessment and life along education**<br>UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.<br>UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.<br>UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status. | | | |
| 2. | Veterinary science in the Russian Federation and countries of the world. State, development prospects. | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.<br>**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**<br>UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.<br>UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.<br>UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status. | | | 4 |

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| 3. | History of veterinary science | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.<br>**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**<br>UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.<br>UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.<br>UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status. состояний. | 1 | | 2 |
| 4. | Major scientific problems in veterinary medicine. Choosing the direction of scientific research. | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions | | | 4 |

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| 5. | Methods of scientific cognition. Methods of theoretical research | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle** | 1 | | 4 |

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| 6. | Methods of scientific cognition. Methods of empirical research | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the | 1 | | 4 |

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| 7. | Scientific criteria. Research object and subject, goals, objectives and hypothesis | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the | 2 | | 2 |

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| 8. | Experiment and organization of the experiment in veterinary medicine. Types of experiments. Stages of scientific experiments. | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.<br>**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**<br>UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity. | 2 | 2 | 2 |

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| | | UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.<br>UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status. | | | |
| 9. | Basics of applied veterinary biostatistics | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.<br>**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**<br>UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.<br>UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.<br>UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status. | | 2 | 4 |
| 10. | Features of the clinical experiment. Bioethics | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation | 1 | | 2 |

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| | fundamentals | UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.<br>**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**<br>UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.<br>UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.<br>UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status. | | | |
| 11. | Basic methods for finding information for scientific research | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of | 1 | | 2 |

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| | | synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.<br>**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**<br>UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.<br>UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.<br>UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status. | | | |
| 12. | Literary presentation of research results, types. Preparation of scientific reports and presentations | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and | 1 | | 4 |

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| | | requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.<br>**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**<br>UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.<br>UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.<br>UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status. | | | |
| 13. | Structure and design of abstract, course and thesis | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: | 1 | | 4 |

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| | | assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.<br>**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**<br>UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.<br>UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.<br>UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status. | | | |
| 14. | Fundamentals of scientific ethics and labor organization. Scientific citation. Plagiarism | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project. | 1 | | 4 |

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| | | **UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**<br>UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.<br>UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.<br>UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status. | | | |
| 15. | Participation in scientific events | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.<br>**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**<br>UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.<br>UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies. | | | 4 |

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| | | UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status. | | | |
| 16. | Participation in competitions of target programs and support funds | UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.<br>**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**<br>UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.<br>UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.<br>UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status. | 1 | | 4 |
| | **Total** | | **14** | **4** | **54** |

## 6. 6. THE LIST OF EDUCATIONAL AND METHODOLOGICAL SUPPORT FOR STUDENTS' SELF WORK ON THE DISCIPLINE

### 6.1. Guidelines for self -work

1. Kryachko O. V., Lukoyanova L. A., Romanova O. V., Savicheva S. V. Osnovy nauchnykh issledovaniy v vetinarii : [Fundamentals of scientific research in veterinary medicine]. Saint Petersburg: SPbGAVM Publishing House, 2015, 71 p. https://search.spbguvm.informsystema.ru/viewer.jsp?aWQ9MzI0JnBzPTcy (in Russian). (accessed: 07.04.2026) - Access mode: for authorization. users of the SPbGUVM Library.

### 6.2. Literature for independent work

1. Kirkwood, B. R., Sterne, J. A. C. Essential Medical Statistics. 2nd ed. Oxford : Wiley Blackwell, 2003. - 504 p.

2. Sokal, R. R., Rohlf, F. J. Biometry: The Principles and Practice of Statistics in Biological Research. 4th ed. New York : W. H. Freeman and Company, 2012. - 937 p.

3. Quinn, G. P., Keough, M. J. Experimental Design and Data Analysis for Biologists. Cambridge : Cambridge University Press, 2002. - 537 p.

4. Dohoo, I. R., Martin, W., Stryhn, H. Veterinary Epidemiologic Research. 2nd ed. Charlottetown : VER Inc., 2009. - 580 p.

5. Thrusfield, M. Veterinary Epidemiology. 3rd ed. Oxford : Blackwell Science, 2005. - 616 p.

6. Zar, J. H. Biostatistical Analysis. 5th ed. Upper Saddle River : Pearson, 2010. - 944 p.

7. Glantz, S. A. Primer of Biostatistics. 7th ed. New York : McGraw Hill Education, 2011. - 320 p.

8. Kotova A.V. Organization and conduct of scientific research activities and preparation of scientific and qualification work (dissertation) for the degree of Candidate of Sciences: methodological recommendations / A.V. Kotova; Ministry of Agriculture of the Russian Federation, SPbGUVM. Saint-Petersburg: FSBEI HE SPbGUVM, 2020. - 26 p. - URL: https://search.spbguvm.informsystema.ru/viewer.jsp?aWQ9Mzk4JnBzPTI3 (accessed on 07.04.2026). - Access mode: for authorization. users of the SPbGUVM Library.

9. Kotova A.V. Presentation of a scientific report on the main results of scientific qualification work ( dissertations): methodological recommendations for graduate students / A.V. Kotova ; Ministry of Agriculture of the Russian Federation, St. Petersburg State University of Internal Affairs. Saint-Petersburg: SPbGUVM Publ., 2020, 22 p. (IN Russian). https://search.spbguvm.informsystema.ru/viewer.jsp?aWQ9ODMyJnBzPTIz (accessed 07.04.2025). - Access mode: for authorization. users of the SPbGUVM Library.

## 7. LIST OF BASIC AND ADDITIONAL LITERATURE REQUIRED FOR MASTERING THE DISCIPLINE

**a) main literature:**

1. Wellems, J. E. et al. (eds.). Research Methods in Veterinary Epidemiology. Hoboken : Wiley Blackwell, 2021. 450 p.

2. Radostits, O. M. et al. Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats. 10th ed. London : Saunders, 2006. 1968 p.

**b) additional literature:**

1. Motulsky, H. J. Intuitive Biostatistics: A Nonmathematical Guide to Statistical Thinking. 4th ed. Oxford : Oxford University Press, 2018. - 560 p.

2. Altman, D. G. Practical Statistics for Medical Research. London : Chapman & Hall/CRC, 1991. - 624 p.

3. Porta, M. (ed.). A Dictionary of Epidemiology. 6th ed. New York : Oxford University Press, 2014. - 320 p.

4. Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G. The PRISMA Statement for Reporting Systematic Reviews and Meta Analyses of Studies That Evaluate Health Care Interventions // PLoS Medicine. 2009. Vol. 6, no. 7. DOI: 10.1371/journal.pmed.1000097.

5. Vandenbroucke, J. P. et al. The STROBE Statement: Guidelines for Reporting Observational Studies in Epidemiology // Epidemiology. 2007. Vol. 18, no. 6. P. 800–804. DOI: 10.1097/EDE.0b013e3181577654.

6. Romanova O. V., Kryachko O. V., Savicheva S. V. Metody nauchnykh issledovaniy v veterinarnoi meditsine [Methods of scientific research in veterinary medicine]. Saint Petersburg: SPbGAVM Publishing House, 2013. - 41 p. (in Russian). https://search.spbguvm.informsystema.ru/viewer.jsp?aWQ9MzQxJnBzPTIy (accessed on 07.04.2026). - Access mode: for authorization. users of the SPbGUVM Library.

## 8. List of resources of the information and telecommunications network "Internet" necessary for mastering the discipline

For students can use the following Internet resources to prepare for laboratory classes and perform independent work:

1. Agropoisk, full-text database of foreign magazines Doal, search engines Rambler, Yandex, Google.
2. http://idschool225.narod.ru/metod.htm -Scientific research methods
3. http://psylib.ex12.ru/religos/Philos/savrush2/index.php Savrusheva M. Filosofiya nauki i tekhniki [Philosophy of Science and Technology]. Study guide for undergraduates

**Electronic library systems:**

- EBS "SPBGUVM"
- EBS "Student's consultant"
- ConsultantPlus Legal Reference System
- University information system "RUSSIA"
- Scientific Electronic Library ELIBRARY.RU
- Russian Scientific Network
- Database of International Science Citation Indexes Web of Science

## 9. METHODOLOGICAL GUIDELINES FOR STUDENTS ON EDUCATION OF THE DISCIPLINE

Methodological recommendations for students are a set of recommendations and explanations that allow the student to optimally organize the process of studying this discipline.

The content of the guidelines, as a rule, may include:

• Tips for planning and organizing the time required to study the discipline. Description of the student's sequence of actions, or "discipline study script." Morning time is the most fruitful for educational work (from 8-14 o'clock), then afternoon time (from 16-19 o'clock) and evening time (from 20-24 o'clock). The most difficult material is recommended for study at the beginning of each time interval after rest. After 1.5 hours of operation, a break is required (10-15 minutes), after 4 hours of operation, the break should be 1 hour. Part of the scientific organization of work is mastering the technique of mental labor. Normally, a student should devote about 10 hours a day to teaching (6 hours at a university, 4 hours at home).

Recommendations for working on lecture material

In preparation for the lecture, the student is recommended:

1) to view the recordings of the previous lecture and restore the previously studied material in memory;

2) to view the upcoming material of the future lecture;

3) if an independent study of individual fragments of the topic of the last lecture is set, then it must be performed without delay;

4) to tune psychologically to the lecture.

This work includes two main stages: lecture notes and subsequent work on lecture material.

By taking notes is meant the compilation of a summary, i.e. a brief written statement of the content of something (oral speech - speech, lecture, report, etc., or a written source - document, article, book, etc.). The method of work when inspecting oral speeches differs significantly from the method of work when inspecting written sources.

Taking notes on written sources, the student has the opportunity to repeatedly read the desired passage of the text, reflect on it, highlight the main thoughts of the author, briefly formulate them, and then write it down. If necessary, he can note his attitude to this point of view. Listening to the lecture, the student should postpone most of the complex of the above works for another time, trying to use every minute to record the lecture, and not to comprehend it - there is no time left for this. Therefore, when reviewing a lecture, it is recommended to separate the fields for subsequent entries on each page in addition to the summary. After recording a lecture or compiling a summary, you should not leave work on the lecture material before starting preparation for the test. It is necessary to do as early as possible the work that accompanies the examination of written sources and which could not be done during the recording of the lecture - read your notes, deciphering individual abbreviations, analyze the text, establish logical connections between its elements, in some cases show them graphically, highlight the main thoughts, note issues requiring additional processing, in particular, teacher consultations.

When working on the text of a lecture, a student should turn special attention to the problematic issues posed by the teacher when giving a lecture, as well as to his tasks and recommendations.

For each lecture, practical lesson and laboratory work, the number is leaded, topic, list of issues under consideration, volume in hours and links to the recommended literature are provided. For classes conducted in interactive forms, their organizational form should be indicated: computer simulation, business or role-playing game, analysis of a specific situation, etc.

• Practical preparation recommendations

Practical (seminar) classes form an important part of the professional training of students. The main goal of conducting practical (seminar) classes is to form analytical, creative thinking among students by acquiring practical skills. Also, practical classes are held in order to deepen and consolidate the knowledge gained at lectures and in the process of independent work on regulatory documents, educational and scientific literature. When preparing for a practical lesson for students, it is necessary to study or repeat theoretical material on a given topic.

When preparing for a practical lesson, the student is recommended to follow the following algorithm;

1) get acquainted with the plan of the upcoming lesson;

2) study the literature sources that have been recommended and familiarize yourself with the introductory notes to the relevant sections.

Methodological guidelines for practical (seminar) classes in the discipline, along with the work program and schedule of the educational process, refer to methodological documents that determine the level of organization and quality of the educational process.

The content of practical (seminar) classes is recorded in the working curricula of the disciplines in the sections "List of topics of practical (seminar) classes".

The most important component of any form of practical training are tasks. The basis of the task is an example that is understood from the standpoint of the theory developed in the lecture. As a rule, the main attention is paid to the formation of specific skills, which determines the content of students' activities - problem solving, laboratory work, clarification of categories and concepts of science, which are a prerequisite for correct thinking and speech.

Practical (seminar) classes perform the following tasks:

- stimulate regular study of recommended literature, as well as attentive attitude to the lecture course;
- consolidate the knowledge gained in the process of lecture training and independent work on literature;
- expand the scope of professionally significant knowledge, skills, and abilities;
- allow you to verify the correctness of previously acquired knowledge;
- initiate skills of independent self-thinking, oral presentation;
- contribute to the free use of terminology;
-provide the teacher with the opportunity to systematically monitor the level of independent work of students.

Methodological guidelines for practical (seminar) classes on the discipline should be focused on modern business conditions, current regulatory documents, advanced technologies, the latest achievements of science, technology and practice, modern ideas about certain phenomena, the studied reality.

• Recommendations for working with literature.

Working with literature is an important stage of the student's self-work on mastering the subject, contributing not only to the consolidation of knowledge, but also to the expansion of horizons, mental abilities, memory, the ability to think, express and confirm personal hypotheses and ideas. In addition, the skills of research work necessary for further professional activityare developed.

When starting to study the literature on the topic, it is necessary to make notes, extracts, notes. It is mandatory to take notes of the works of theorists, which allow us to comprehend the theoretical basis of the study. For the rest, you can limit yourself to summary from the studied sources. All summaries and quotations must have the exact "return address" (author, title of the work, year of publication, page, etc.). It is advisable to write an abbreviated title of the question to which the extract or quotation refers. In addition, it is necessary to learn how to immediately compile a file of special literature and publications of sources, both proposed by the teacher and identified independently, as well as refer to bibliographic reference books, chronicles of journal articles, book chronicles, abstract journals. At the same time, publications of sources (articles, book titles, etc.) should be written on separate cards, which must be filled in according to the rules of bibliographic description (surtitle, initials of the author, title of the work. Place of publication, publisher, year of publication, number of pages, and for journal articles – the title of the journal, year of publication, page numbers). On each card, it is advisable to record the thought of the author of the book or a fact from this book on only one specific issue. If the work, even in the same paragraph or phrase, contains more judgments or facts on another issue, then they should be written out on a separate card. The presentation should be concise, accurate, without subjective assessments. On the back of the card, you can make your own notes about this book or article, its content, structure, on which sources it is written, etc.

• Explanations about working with control and test materials for the course, recommendations for completing homework.

Testing is a conrol that allows you to determine whether the actual behavior of the program corresponds to the expected one by performing a specially selected set of tests. A test is the fulfillment of certain conditions and actions necessary to verify the operation of the function under test or part of it. Each question in the discipline must be answered correctly by choosing one option.

## 10. EDUCATIONAL WORK

As part of the implementation of the discipline, educational work is carried out to form a modern scientific worldview and a system of basic values, the formation and development of spiritual and moral, civil and patriotic values, a system of aesthetic and ethical knowledge and values, attitudes of tolerant consciousness in society, the formation of students' need for work as the first vital necessity, the highest value and the main way to achieve success in life, to realize the social significance of your future profession.

## 11. THE LIST OF INFORMATION TECHNOLOGIES USED IN THE IMPLEMENTATION OF THE EDUCATIONAL PROCESS

### 11.1 Information technologies

For the educational process of the discipline is previewed the use of information technologies:

- practical classes using multimedia;
- interactive technologies (dialogues, collective discussion on various topics for realization a particular educational and professional task);
- interaction with students via e - mail;
- community work in the electronic information and educational environment of St. Petersburg State University: https://spbguvm.ru/academy/eios/

### 11.2. Software

**The list of licensed and free- distributed software, including national programs**

| № п/п | Technical and computer programs recommended by sections and topics of the program | License |
|---|---|---|
| 1 | MS PowerPoint | 67580828 |
| 2 | LibreOffice | free software |
| 3 | OS Alt Education | AAO.0022.00 |
| 4 | ABIS " MARK-SQL" | 02102014155 |
| 5 | MS Windows 10 | 67580828 |
| 6 | System Consult Plus | 503/КЛ |
| 7 | Android OS | free software |

## 12. THE MATERIAL AND TECHNICAL BASE NECESSARY FOR THE IMPLEMENTATION OF THE DISCIPLINE EDUCATIONAL PROCESS.

| **The title of the discipline (module), practice in accordance with the curriculum** | **The title of special rooms and rooms for self-work** | **Equipment of special rooms and rooms for self-work** |
|---|---|---|
| Methodology of the scientific research | 216(5, Chernigovskaya St., St. Petersburg, 196084) Classroom for seminar-type classes, group and individual consultations, current control and intermediate certification | *Specialized furniture:* seats, desks, chairs, whiteboard, TV, multimedia, VCR. |

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| | 316 (5, Chernigovskaya St., St. Petersburg, 196084) Classroom for seminar-type classes, group and individual consultations, current control and intermediate certification | *Specialized furniture:* desks, chairs, whiteboard, TV, multimedia, VCR. |
| | 206 Large reading room (196084, St. Petersburg, Chernigovskaya str., 5) Room for self-work | *Specialized furniture:* tables, chairs<br>*Technical means of education:* computers connected to the Internet and access to an electronic information and educational environment информационно-образовательную среду |
| | 214 Small reading room (196084, St. Petersburg, Chernigovskaya str., 5) Room for self-work | *Specialized furniture:* tables, chairs<br>*Technical means of education:* computers connected to the Internet and access to an electronic information and educational environment |
| | 324 Information Technology Department (196084, St. Petersburg, Chernigovskaya str., 5) Room for storage and preventive maintenance of educational equipment | *Specialized furniture:* tables, chairs, special equipment, materials and spare parts for preventive maintenance of technical training facilities |
| | Box No. 3 Carpentry workshop (196084, St. Petersburg, Chernigovsaya str., 5) Room for storage and preventive maintenance of educational equipment | *Specialized furniture:* tables, chairs, special equipment, materials and spare parts for preventive maintenance of technical training facilities |

**Developers:**

Head of the department of pathological physiology
Doctor of Veterinary Science, Professor — O.V. Kryachko

Candidate of Veterinary Science, associate professor — L.A. Lukoyanova

**Program abstract of the discipline**
**B1.V.19 « Methodology of the scientific research»**
**specialty 36.05.01 Veterinary Medicine**
**Profile «General clinical veterinary medicine»**

**The purpose of the discipline:** the purpose of the discipline is acquainting students with traditional concepts of science and the formation of scientific thinking. The study of the concepts of "science," "research activities," "object" and "subject" of scientific research; the concept of general scientific research methods and features of research in veterinary medicine; the study of methods of mathematical analysis in scientific research; mastering the skills of determining statistical reliability when processing the results of scientific research; studying the basics of writing scientific papers

**Position of the discipline in the curriculum:** B1.V.20 «Methodology of the scientific research» is a variable part of the study. It is mastered in the 5th semester of full-time education.

**Requirements for the results of mastering the discipline:** The graduate of the discipline «Methodology of the scientific research» should form the following competencies:

**UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation**

UC-1 ID-1

**To know** methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis

UC-1 ID-2

**To be able to** gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.

UC-1 ID-3

**To possess skills** of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.

**UC-2. Is able to manage the project at all stages of life cycle**

UC-2 ID-1

**To know** methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work

UC-2 ID-2

**To be able to**: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-

standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.

UC-2 ID-3

**To possess skills of:** project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.

**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**

UC-6 ID-1

**To know**: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.

UC-6 ID-2

**To be able to** build the self process of mastering selected and structured information, including digital technologies.

UC-6 ID-3

**To possess skills of**: techniques of self-regulation of psycho-emotional and functional status.

**Abstract of the discipline:** The purpose of the discipline "Methodology of scientific research" is to prepare a future veterinarian with theoretical and practical skills to successfully resolve issues related to conducting scientific experimental clinical morphological studies. They will be acquainting with laboratory dishes and equipment for research.

The necessary condition for solving these problems is the clear organization and implementation of the stages of statistical research. Therefore, it is necessary to learn the basic rules and procedure for such work. Learn how to draw up a program of statistical research, determine the volume of observations, conduct development, summary and analysis of the material.

The students will be providing the basic concepts of the theory of solving inventive problems and patent science to broaden their horizons, develop scientific thinking; develop student's ability to navigate scientific information for their implementation in practice, in particular in the field of veterinary medicine. The students will be acquainting with the structure of the library, methods of bibliographic search, catalogs and file cabinets, bibliographic description of primary sources, design of lists of used literature for scientific works.

**The complexity of the discipline is:** 72 academic hours (2 credits).

**Final control of the discipline:** test.

Annex 1

Ministry of Agriculture of the Russian Federation
Federal State Budgetary Educational Institution
of higher education
"Saint Petersburg State University of Veterinary Medicine"

## Department of Pathological Physiology

**FUND OF ASSESMENT TOOLS**

**for the discipline**

**«METHODOLOGY OF THE SCIENTIFIC RESEARCH»**

Level of higher education
SPECIALIST COURSE

Specialty 36.05.01 Veterinary medicine
Profile: "General clinical veterinary medicine"
Full-time education.

Education starts in 2026

Saint Petersburg
2026

### 1. PASSPORT IF THE FUND OF ASSESMENT TOOLS

Table 1

| № | Acquired competence | Assessed modules of a discipline | Assesment tool |
|---|---|---|---|
| 1. | **UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation**<br>UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis<br>UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.<br>UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.<br>**UC-2. Is able to manage the project at all stages of life cycle**<br>UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.<br>UC-2 ID-2 To be able to: substantiate the | Section 1. Science and the concept of scientific research. History of veterinary science. | Survey,report,seminar,test |
| 2. | | Section 2. Classification of scientific research and methods. | Survey,report,seminar,test |
| 3. | | Section 3. Experiment and organization of the experiment in veterinary medicine. | Survey,report,seminar,test |
| 4. | | Section 4. Experiment on laboratory animals. | Survey,report,seminar,test |
| 5. | | Section 5. Statistical methods for processing results. | Survey,report,seminar,test |
| 6. | | Section 6. Statistical methods for processing results. | Survey,report,seminar,test |
| 7. | | Section 7. Literary exposition. | Survey,report,seminar,test |
| 8. | | Section 8. Preparation of reports and presentations. | Survey,report,seminar,test |

| | | | |
|---|---|---|---|
| 9. | theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.<br>UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.<br>**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**<br>UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.<br>UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.<br>. | Section 9. Method of public speaking. | Survey,report,seminar,test |

## 1. List of assessment tools

**Table 2**

| № | Title of the assessment tool | Brief description of the assesment tool | Presentation of the assessment tool in the fund |
|---|---|---|---|
| 1. | Seminar | A means of control is organized as a conversation between the teacher and the student on topics related to the discipline, and designed to clarify the amount of knowledge that students have on a certain module, topic, problem, etc. May be conducted in written form. | Questions by Discipline Topic/Section |
| 2. | Test | A system of standardized tasks, which allows to automate the assessment of students knowledge and skills | Fund of assessment tools for the discipline |
| 3. | Report | The product of the student's independent work, which is a summary in writing of the results obtained theoretical analysis of a certain scientific (educational and research) topics, where the author reveals the essence of the problem under study, leads different points of view, as well as own views on it | Topics of reports |
| 4 | Survey | A tool for monitoring the assimilation of the educational material of a topic, section or sections of a discipline, organized as a training session in the form of a teacher's interview with students | A tool for monitoring the assimilation of the educational material of a topic, section or sections of a discipline, organized as a training session in the form of a teacher's interview with students |

## 2. INDICATORS AND CRITERIA FOR ASSESSING COMPETENCIES AT VARIOUS STAGES OF ITS FORMATION, DESCRIPTION OF ASSESSMENT SCALES

Table 3

| Planned results of competency acquaired | The level of development | | | | Assesment tool |
|---|---|---|---|---|---|
| | Unsatisfactory | Satisfactory | Good | Exellent | |
| **UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation** | | | | | |
| UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis. | The level of knowledge is below the minimum requirements, gross errors have occurred | The minimum acceptable level of knowledge, many minor errors have been made | The level of knowledge corresponds to the training program, several minor errors have been made | The level of knowledge corresponds to the training program, no errors have been made | Survey, abstract, colloquium, test, control work |
| UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies. | Basic skills were not demonstrated in solving standard tasks, and gross errors occurred | Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full | All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws | All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full | Survey, abstract, colloquium, test, control work |
| UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and | Basic skills were not demonstrated in | Basic skills have been demonstrated, | All the basic skills have been demonstrated, all | All basic skills have been demonstrated, all | Survey, abstract, colloquium, test, control work |

| | | | | | |
|---|---|---|---|---|---|
| other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations. | solving standard tasks, and gross errors occurred | typical problems have been solved with minor errors, all tasks have been completed, but not in full | the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws | main tasks have been solved with some minor flaws, all tasks have been completed in full | |
| **UC-2. Is able to manage the project at all stages of life cycle** | | | | | |
| UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work. | The level of knowledge is below the minimum requirements, gross errors have occurred | The minimum acceptable level of knowledge, many minor errors have been made | The level of knowledge corresponds to the training program, several minor errors have been made | The level of knowledge corresponds to the training program, no errors have been made | Survey, abstract, colloquium, test, control work |
| UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project | Basic skills were not demonstrated in solving standard tasks, and gross errors occurred | Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full | All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws | All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full | Survey, abstract, colloquium, test, control work |

| | | | | | |
|---|---|---|---|---|---|
| work. | | | | | |
| UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project. | Basic skills were not demonstrated in solving standard tasks, and gross errors occurred | Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full | All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws | All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full | Survey, abstract, colloquium, test, control work |
| **UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education.** | | | | | |
| UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity. | The level of knowledge is below the minimum requirements, | The minimum acceptable level of knowledge, many minor errors have been | The level of knowledge corresponds to the training program, several minor | The level of knowledge corresponds to the training program, no errors have been | Survey, abstract, colloquium, test, control work |

| | | | | | |
|---|---|---|---|---|---|
| | gross errors have occurred | made | errors have been made | made | |
| UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies. | Basic skills were not demonstrated in solving standard tasks, and gross errors occurred | Basic skills have been demonstrated, typical problems have been solved with minor errors, all tasks have been completed, but not in full | All the basic skills have been demonstrated, all the main tasks have been solved with minor errors, all the tasks have been completed in full, but some with flaws | All basic skills have been demonstrated, all main tasks have been solved with some minor flaws, all tasks have been completed in full | Survey, abstract, colloquium, test, control work |
| UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status. | The level of knowledge is below the minimum requirements, gross errors have occurred | The minimum acceptable level of knowledge, many minor errors have been made | The level of knowledge is below the minimum requirements, gross errors have occurred | The level of knowledge corresponds to the training program, no errors have been made | Survey, abstract, colloquium, test, control work |

## 3. LIST OF CONTROL TASKS AND OTHER MATERIALS REQUIRED TO ASSESS KNOWLEDGE, SKILLS AND EXPERIENCE THAT CHARACTERIZE THE STAGES OF FORMING COMPETENCIES IN THE PROCESS OF MASTERING THE EDUCATIONAL PROGRAM

### 3.1.1. Questions for the Colloquium

**Competence to be formed:**

**UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation**

UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis

UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.

UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.

1. Define the concept of "science." What does the concept of "veterinary science" include?
2. What features of science as a form of knowledge of the world do you know?
3. What is research activity in general?
4. Tell us about the most important features of scientific research.
5. Characterize the object and subject of scientific research.
6. What conditionally distinguished groups of disciplines are included in the complex of veterinary science? Give them a brief characterization.
7. Tell us about the main historical stages of the formation of veterinary science.
8. Tell us about the development of veterinary science in Russia.
9. Describe the current state of veterinary science in the world.
10. Give a brief description of the main types of scientific research for the intended purpose
11. What two levels of knowledge are distinguished in the methodology of scientific research? Characterize them.
12. By what parameters do the levels of scientific knowledge differ?
13. Give a brief description to groups of methods of scientific cognition.
14. Give a brief description of the general scientific methods of scientific knowledge.
15. Define "analysis" and "synthesis." How are these general scientific methods used in veterinary science?
16. Define "induction" and "deduction." How are these general scientific methods used in veterinary science?
17. Tell us about the logical and historical general scientific methods.

**Competence to be formed:**

**UC-2. Is able to manage the project at all stages of life cycle**

UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.

UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.

UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.

1. What do you know about the use of analogy and simulation methods in veterinary medicine.
2. Characterize particular or specific methods common in veterinary medicine.
3. What is meant by the term "private technique"? What is the purpose of using private methods in veterinary medicine?
4. Tell us about empirical research methods.
5. Define "observation" and "experiment"
6. Tell us about the peculiarities of observation in veterinary medicine.
7. What characteristic features of the experiment do you know?
8. Tell us about the objective and theoretical sides of the experiment.
9. How is the preparation (planning) for the experiment?
10. Tell us about the peculiarities of preparing and performing experiments in veterinary medicine.
11. What are the criteria for the need to use laboratory animals for scientific and educational purposes?
12. What are the alternatives to biotesting?
13. Give a brief description of the main stages of the experiment.
14. What are the basic principles for obtaining and analyzing experimental data?
15. How are the results obtained during the experiment processed and documented?
16. What levels of research activity are used in veterinary medicine?
17. Tell us about the main conditionally distinguished groups of disciplines in veterinary medicine as a complex of sciences.
18. What general scientific research methods are used in veterinary research activities?

**Competence to be formed:**

**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**

UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.

UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.

UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status.

1. List the main criteria for classical science
2. List the main signs of scientific
3. What is a scientific hypothesis, list the main requirements for it
4. What hypotheses are distinguished by functions in the cognitive process?
5. Which hypotheses are distinguished by direction of results
6. What hypotheses are distinguished by the subject of the study
7. Stages of hypothesis development
8. What is an object, subject and subject of scientific research?
9. What is the purpose and objectives of scientific research?
10. What is a scientific experiment?
11. Features of a scientific experiment
12. Experimental planning steps

13. How is the experimental group different from the control?
14. Types of experiments on the degree of impact on the object
15. Types of experiments by purpose
16. Types of experiment on organization of
17. Types of experiment by logical structure
18. Types of experiment by the nature of interaction with the object
19. Types of experiment by expected result
20. What is the "Source of Scientific Information"? List the main properties of scientific information.
21. What types of information sources do you know by the form of presentation
22. What types of information sources do you know by the novelty of information?
23. What types of information sources do you know by frequency?
24. What are the main types of scientific books you know?
25. What are the main types of training books you know?
26. What types of electronic information sources do you know?
27. What methods of recording the received information do you know?
28. List the types of notes

**3.1.2. Standart tasks for performance monitoring for competency assessment**

**UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation**

UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis

UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.

UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.

**UC-2. Is able to manage the project at all stages of life cycle**

UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.

UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.

UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.

**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**

UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.

UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.
UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status.

1. Define the concept of "science." What does the concept of "veterinary science" include?
2. What is research activity in general?
3. Characterize the object and subject of scientific research.
4. Tell us about the development of veterinary science in Russia.
5. Give a brief description of the main types of scientific research for the intended purpose
6. By what parameters do the levels of scientific knowledge differ?
7. Define "analysis" and "synthesis." How are these general scientific methods used in veterinary science?
8. Define "induction" and "deduction." How are these general scientific methods used in veterinary science?
9. Characterize particular or specific methods common in veterinary medicine.
10. Tell us about empirical research methods.
11. Define "observation" and "experiment"
12. Tell us about the peculiarities of observation in veterinary medicine.
13. What characteristic features of the experiment do you know?
14. Tell us about the objective and theoretical sides of the experiment.
15. How is the preparation (planning) for the experiment?
16. How are the results obtained during the experiment processed and documented?
17. What levels of research activity are used in veterinary medicine?
18. Tell us about the main conditionally distinguished groups of disciplines in veterinary medicine as a complex of sciences.
19. What general scientific research methods are used in veterinary research activities?
20. What are the features of conducting scientific research in veterinary medicine?
21. What private research methods are classified as invasive?
22. What non-invasive research methods in modern veterinary medicine do you know?
23. What research methods in veterinary medicine can be classified as weakly invasive?
24. What in veterinary specialized scientific research is an "object" and "subject"?
25. What types of abstracts do you know? What are the differences between abstract works and scientific articles?

**Topics of reports for independent work:**

**UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation**
UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis
UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.
UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.
**UC-2. Is able to manage the project at all stages of life cycle**

UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.
UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.
UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.
**UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education**
UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.
UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.
UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status.
1. Specificity of scientific activity. Methods and means of scientific cognition.
2. Impact of scientific research on the development of society.
3. Relevance, object and subject of scientific research in veterinary medicine.
4. Scientific research process. Characteristics of milestones.
5. Organizational structure and trends in the development of veterinary science in Russia.
6. Priority areas for the development of veterinary science in Russia.
7. Types and forms of student research work.
8. Scientific papers and publications. Organization of work with scientific literature.
9. The purpose and objectives of scientific research, their logical relationship.
10. General characteristics of research methods in veterinary medicine.
11. Organization of scientific research of students at SPbGUVM.
12. Organization of research work in Russia.
13. Academic degrees and academic titles in the Russian Federation and abroad.
14. The system of training scientific and scientific-pedagogical personnel in Russia.
15. Master's degree in multi-level higher education.
16. Team management when performing research and production tasks.
17. Research methodology.
18. Method, observation, comparison, counting, measurement, experiment, generalization, abstraction, formalization, axiomatic method.
19. Analysis, synthesis induction, deduction, analogy, hypothetical method, historical method.
20. Empirical, experimental-theoretical, theoretical and meta-theoretical levels of methods of scientific cognition.
21. Selection of NI direction. Relevance of the topic (issue). Research goals and objectives. Object of research. Research subject. Scientific novelty of the study results. Practical significance of the study results.
22. System analysis of the problem being solved.
23. Systems models and their classification.

24. Mathematical models of systems and methods of their construction. Using a mathematical model to set a research problem.
25. Model class selection and justification.
26. Estimation of model parameters from experimental data.
27. Selection and justification of the problem solution method.
28. Features of the software implementation of the method of solving the problem.
29. The analysis of results of a research of efficiency of the solution of the considered problem.
30. Classification of research papers. Evaluation of the prospects of research work. Performance criteria.
31. Copyright. Intellectual property protection. Types and objects of intellectual property. Liability for copyright infringement.
32. Information retrieval, accumulation and processing of scientific information. Search methods.
33. Scientific research software.
34. What is a dissertation. Basic requirements for dissertations.
35. The main stages of the preparation of the dissertation. Thesis defense.

### 3.1.3. Test - questions on the discipline "Methodology of scientific research"

**Competence to be formed:**
**UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation**
UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis
UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.
UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations.

**CLOSED-TYPE TASKS**

**Combined tasks with a choice of one correct answer from the suggested options**

**UC-1-Is able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy**
UC-1ID-1 -Know the methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis.

**Task 1.**
*Read the text and choose the correct answer.*
Distinctive features of scientific research are:
1. purposefulness;
2. search for a new one.
3. systematic approach.
4. strict evidence-based approach.
5. all the listed attributes.
**Answer: 5**

**Task 2.**
*Read the text and choose the correct answer.*
Invasive research methods –

1. associated with minor and short-term effects on a living organism;
2. involve violation of the integrity of tissues and organs, introduction into cavities, interference with the functions of individual organs, removal or damage to them;
3. methods do not have a damaging effect on a living organism, but at the same time help to obtain information about it;
4. They are associated with the introduction of therapeutic drugs intravenously.

**Answer: 2**

UC-1ID-2 To be able to acquire new knowledge based on analysis, synthesis, etc.; to collect and summarize data on current scientific problems related to the professional field; to search for information and solutions based on actions, experiments, experience, information and communication technologies.

**Task 3.**
*Read the text and choose the correct answer.*
What is the style of writing essays, monographs, theses, dissertations, reports, and reviews?

1. art form;
2. scientific;

3. journalistic content.
4. official-business.

**Answer: 2**

**Task 4.**
*Read the text and choose the correct answer.*
What are the main empirical research methods?

1. observation, experiment, description, measurement, assumption;
2. observation, experiment, description, measurement;
3. observation, experiment, description, assumption.
4. observation, experiment, description, analysis.

**Answer: 2**

UC-1ID-3 Master the study of the problem of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies; identifying problems and using adequate methods to solve them; demonstrating value judgments in solving problematic professional situations.

**Task 5.**
*Read the text and choose the correct answer.*
The problem of scientific research is...

1. what is to be discovered, proved, something unknown in science
2. what the author of a scientific study can't do
3. source of information required for the study
4. a more specific source of information needed for the study

**Answer: 1**

**UC-2 is able to manage a project at all stages of its life cycle**

UC-2ID-1 Know the methods of presenting and describing the results of project activities, including those based on digital technologies; methods, criteria and parameters for evaluating the results of project implementation; principles, methods and requirements for project work.

**Task 6.**

*Read the text and choose the correct answer.*

The brochure is...

1. publication of the works of one or several authors who often view a single scientific work from different points of view
2. a critical review of one or several scientific works, which analyzes the importance and relevance of the presented research, evaluates the quality of the presentation, and conducts expert reviews
3. a small-volume print publication, usually with popular science content
4. scientific work of one or more authors who adhere to a single point of view, which contains a comprehensive study of one problem or topic

**Answer: 3**

**Task 7.**

*Read the text and choose the correct answer.*

What sciences are aimed at applying new knowledge to achieve practical goals and solve specific problems?

1. applied sciences
2. basic sciences
3. technical sciences
4. natural sciences

**Answer: 1**

UC-2ID-2 Be able to justify the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to their solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.

**Task 8.**

*Read the text and choose the correct answer.*

The compositional structure of a public speech is as follows:

1. main part, conclusion, conclusions
2. introduction, main part, conclusion
3. main part, narration, conclusion
4. beginning, end

**Answer: 2**

**Task 9.**

*Read the text and choose the correct answer.*

A set of techniques, operations and methods of theoretical cognition and practical transformation of reality when certain results are achieved is -

1. method
2. principle
3. experiment
4. development
**Answer: 1**

UC-2ID-3 Master project management in the field of relevant professional activities, including on the basis of digital technologies; distribution of tasks and motivation to achieve goals; management of the development of the project specification, management of the implementation of specialized project work and the process of discussing and finalizing the project; participation in the development of the project specification, development of the project implementation program in professional area; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; determination of requirements for the results of project implementation.

**Task 10.**
*Read the text and choose the correct answer.*
A science or complex of sciences in which research is conducted is ...
1. scientific direction
2. scientific theory
3. scientific concept
4. scientific experiment
**Answer: 1**

**UC-6 is able to determine and implement priorities of its own activities and ways to improve them based on self-assessment and lifelong education**
UC-6ID-1 Know the content of self-organization and self-education processes, their features and technologies of implementation, based on the goals of improving professional activity.
**Task 11.**
*Read the text and choose the correct answer.*
The natural sciences are called...
1. social sciences
2. philosophical sciences
3. technical sciences
4. natural sciences
**Answer: 4**

**Task 12.**
*Read the text and choose the correct answer.*
The teaching about the principles, forms, methods of cognition and transformation of reality, the application of the principles of worldview to the process of cognition, spiritual creativity and practice is -
1. methodology
2. ideology
3. analogy
4. morphology
**Answer: 1**

UC-6ID-2 To be able to independently build the process of mastering selected and structured information, including using digital technologies.

**Task 13.**

*Read the text and choose the correct answer.*

What is analysis?

1. it is a method of studying an object in its entirety, in the unity and mutual connection of its parts
2. this is a research method that consists of studying an object by mentally or practically dissecting it into its component elements
3. this is a research method in which a general conclusion about the features of a set of elements is made based on the study of these features in a part of the elements of the set
4. This is a method of logical inference from the general to the particular

**Answer: 2**

**Task 14.**

*Read the text and choose the correct answer.*

A typical scientific study consists of 3 main stages. Which of the following steps is unnecessary?

1. Preparatory course
2. Creative
3. Research Center
4. Final report

**Answer: 2**

UC-6ID-3 Master the techniques of self-regulation of psychoemotional and functional states.

**Task 15.**

*Read the text and choose the correct answer.*

The main features of the scientific style in both oral and written speech are:

1. relaxed nature of communication, emotional and expressive coloring of speech, lexical variety
2. accuracy, consistency, and objectivity
3. accuracy, standardization, prescriptive nature of the presentation
4. emotionality, variety of visual means, metaphorical nature, meaningful verbosity

**Answer: 2**

**Tasks of a combined type with a choice of several correct answers from the suggested options**

**UC-1-Is able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy**

UC-1ID-1 -Know the methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis.

**Task 16.**

*Read the text and choose the correct answers.*

All methods of scientific knowledge are divided into groups according to the degree of generality and breadth of application. These groups of methods include:

1. philosophical;

2. general scientific;
3. private science;
4. defining features.
5. disciplinary measures.
**Answer: 1,2,3,5**

**Task 17.**
*Read the text and choose the correct answers.*
Which of the following is the hallmark of scientific research?

1. Focus
2. search for a new one
3. out-of-system feature
4. conclusiveness

**Answer: 1,2,4**

UC-1ID-2 To be able to acquire new knowledge based on analysis, synthesis, etc.; to collect and summarize data on current scientific problems related to the professional field; to search for information and solutions based on actions, experiments, experience, information and communication technologies.

**Task 18.**
*Read the text and choose the correct answers.*
The criteria for evaluating the defense of a written work are:
1. Completeness of topic disclosure
2. Logical presentation
3. Memorable appearance
4. Correct vocabulary used
**Answer: 1,2,4**

**Task 19.**
*Read the text and choose the correct answers.*
General logical methods and techniques of cognition include:
1. analysis
2. synthesis
3. abstracting
4. experiment
**Answer: 1,2,3**

UC-1ID-3 Master the study of the problem of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies; identifying problems and using adequate methods to solve them; demonstrating value judgments in solving problematic professional situations.

**Task 20.**
*Read the text and choose the correct answers.*
Which of the following is the hallmark of scientific research?
1. focus
2. search for a new one
3. haphazardness
4. evidence-based approach
**Answer: 1,2,4**

**UC-2 is able to manage a project at all stages of its life cycle**

UC-2ID-1 Know the methods of presenting and describing the results of project activities, including those based on digital technologies; methods, criteria and parameters for evaluating the results of project implementation; principles, methods and requirements for project work.

**Task 21.**

*Read the text and choose the correct answers.*

What are some bibliographic references?

1. interstitial texts

2. superscripts
3. footnotes
4. zatekstovye

**Answer: 1,3,4**

**Task 22.**

*Read the text and choose the correct answers.*

The objectives of the course work include:

1. consolidate, deepen and expand theoretical knowledge
2. master the skills of independent work
3. develop the ability to formulate judgments and conclusions
4. develop public defense skills
5. gain new scientific knowledge

**Answer: 1,2,3,4**

UC-2ID-2 Be able to justify the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to their solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.

**Task 23.**

*Read the text and choose the correct answers.*

The requirements for the course work include:

1. structure requirements
2. content requirements
3. requirements for implementation in practice
4. design requirements

**Answer: 1,2,4**

**Task 24.**

*Read the text and choose the correct answers.*

Please indicate which of these features are characteristic of the scientific style:

1. use of special terminology
2. logical sequence of presentation
3. scientific phraseology
4. extensive use of other styles of vocabulary and phraseology

**Answer: 1,2,3**

UC-2ID-3 Master project management in the field of relevant professional activities, including on the basis of digital technologies; distribution of tasks and motivation to achieve goals; management of the development of the project specification, management of the implementation of specialized project work and the process of discussing and finalizing the project; participation in the development of the project specification, development of the project implementation program in professional area; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; determination of requirements for the results of project implementation.

**Task 25.**
*Read the text and choose the correct answers.*
Genre types of written scientific speech do not include:
1. report, essay, feuilleton
2. abstract, monograph, article
3. law, instruction, regulation
4. short story, novel, or poem
**Answer: 1,3,4**

**UC-6 is able to determine and implement priorities of its own activities and ways to improve them based on self-assessment and lifelong education**
UC-6ID-1 Know the content of self-organization and self-education processes, their features and technologies of implementation, based on the goals of improving professional activity.

**Task 26.**
*Read the text and choose the correct answers.*
The main features of the scientific style in both oral and written speech are not:
1. relaxed nature of communication, emotional and expressive coloring of speech, lexical variety
2. accuracy, standardization, prescriptive nature of the presentation
3. accuracy, abstractness, logic, objectivity
4. emotionality, variety of visual means, metaphorical nature, content diversity
**Answer: 1,2,4**

**Task 27.**
*Read the text and choose the correct answers.*
The style of written scientific speech allows you to:
1. the third-person presentation form ("the author believes...")
2. sentences with a passive voice ("a new approach has been developed...")
3. the author's "I"
4. superlative forms of adjectives expressing comparison
**Answer: 1,2**

UC-6ID-2 To be able to independently build the process of mastering selected and structured information, including using digital technologies.

**Task 28.**
*Read the text and choose the correct answers.*
The most commonly used expressions of a general nature in scientific and professional speech include:
1. First of all, I would like to focus on...
2. I would like to emphasize that...

3. You need to notice...
4. I never imagined that...
**Answer: 1,2,3**

**Task 29.**
*Read the text and choose the correct answers.*
The details of the title page of a written work include:
1. name of the ministry (department)
2. last name of the reviewer
3. name of the educational institution
4. name of the department of the educational institution
**Answer: 1,3,4**

UC-6ID-3 Master the techniques of self-regulation of psychoemotional and functional states.

**Task 30.**
*Read the text and choose the correct answers.*
The" Appendices " of scientific work include...
1. list of references
2. copies of documents
3. production plans and protocols
4. tables, graphs, diagrams
**Answer: 2,3,4**

**Closed-type compliance tasks**

**UC-1-Is able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy**
UC-1ID-1 -Know the methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis.

**Task 31.**
*Read the text and make a match.*
Compare the concepts and main requirements:

| | |
|---|---|
| 1. Experiment | A) Representation of object properties as a value |
| 2. Formalization | B) Purposeful perception of phenomena, assuming their description |
| 3. Observation | C) Impact on the object or its surrounding conditions |

Write down the selected numbers under the corresponding letters in the table.

| A | B | C |
|---|---|---|
| | | |

**Answer: 1-C, 2-A, 3-B**

**Task 32.**
*Read the text and make a match.*
Establish a correspondence between the research stages:

| | |
|---|---|
| 1. The first stage of research | A) Selection of methods, hypothesis testing, research, formulation of preliminary conclusions |
| 2. Second stage of the study | B) Implementation of the results obtained in practice |
| 3. Third stage of research | C) Selection of the problem and topic definition of the |

| | |
|---|---|
| | object and subject, development of a hypothesis |

Write down the selected numbers under the corresponding letters in the table.

| A | B | C |
|---|---|---|
| | | |

**Answer: 1-B; 2-A; 3-B**

UC-1ID-2 To be able to acquire new knowledge based on analysis, synthesis, etc.; to collect and summarize data on current scientific problems related to the professional field; to search for information and solutions based on actions, experiments, experience, information and communication technologies.

**Task 33.**

*Read the text and make a match.*

Establish compliance with the following types of patent:

| | |
|---|---|
| 1. Utility model patent | A) Exclusive right to use the invention for a period of 20 years from the date of filing the application |
| 2. Patent for an industrial design | B) Intellectual property that protects the appearance of an industrial product |
| 3. Patent for invention | B) A security certificate that confirms the exclusive right to use a new and useful product or method |

Write down the selected numbers under the corresponding letters in the table.

| A | B | C |
|---|---|---|
| | | |

**Answer: 1-B; 2-B; 3-A**

**Task 34.**

*Read the text and make a match.*

Establish compliance with the types of scientific publications:

| | |
|---|---|
| 1. Monograph | A) a non-recurrent scientific collection containing the results of a scientific conference |
| 2. Abstract of a dissertation | B) a scientific or popular scientific book publication containing a complete and comprehensive study of a single problem or topic belonging to one or several authors |
| 3. Materials of the scientific conference | C) a scientific publication in the form of a booklet containing the abstract of the research conducted by the author, which is submitted for the application of an academic degree |

Write down the selected numbers under the corresponding letters in the table.

| A | B | C |
|---|---|---|
| | | |

**Answer: 1-B, 2-C, 3-A**

UC-1ID-3 Master the study of the problem of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies; identifying problems and using adequate methods to solve them; demonstrating value judgments in solving problematic professional situations.

**Task 35.**

*Read the text and make a match.*

Make sure that the content of tasks when performing physical experiments corresponds to the following:

| | |
|---|---|
| 1. Planning Experiment | A) This stage defines the goals and hypotheses of the experiment, selects measurement methods, develops procedures, and determines the necessary resources |
| .2 Preparing for the experiment | B) This stage includes preparing the necessary equipment and materials, solving safety issues, and selecting and training personnel participating in Experiment |
| 3. Conducting an experiment | In) At this stage, the obtained data is processed, the results are compared with hypotheses, and conclusions are formulated based on data analysis |
| 4. Analysis of results and conclusions | D) At this stage, measurements and observations are made according to the experimental plan, data is collected and observations are recorded |

Write down the selected numbers under the corresponding letters in the table.

| A | B | In | C D |
|---|---|---|---|
| | | | |

**Answer: 1-A; 2-B; 3-D; 4-C**

UC-2 is able to manage a project at all stages of its life cycle

UC-2ID-1 Know the methods of presenting and describing the results of project activities, including those based on digital technologies; methods, criteria and parameters for evaluating the results of project implementation; principles, methods and requirements for project work.

**Task 36.**

*Read the text and make a match.*

Make sure that the concepts and definitions match:

| | |
|---|---|
| 1. Novelty | A) The research should include new scientific data, ideas or concepts |
| 2. Relevance | B) The research should have significant practical or theoretical potential that can lead to new discoveries, solve complex problems, or improve existing methods |
| 3. Relevance | C) The research should address an important problem in science or practice and be useful to a broad audience |

Write down the selected numbers under the corresponding letters in the table.

| A | B | C |
|---|---|---|
| | | |

***Answer:*** **1-A; 2-B, 3-C**

**Task 37.**

*Read the text and make a match.*

*Establish a correspondence between the concept and its definition.*

| | |
|---|---|
| 1. The highest form of organization of scientific knowledge, which gives a holistic | A) science; |

| | |
|---|---|
| view of the laws and essential connections of the studied area of reality; | |
| 2. An assumption about the cause that causes this effect; | B) a scientific theory; |
| 3. The discovered inability to explain new facts through existing scientific knowledge; | C) a scientific problem; |
| 4. A sphere of human activity, the function of which is to develop and theoretically systematize objective knowledge about reality. | D) hypothesis. |

Write down the selected numbers under the corresponding letters in the table.

| A | B | In | C D |
|---|---|---|---|
| | | | |

**Answer: 1-B, 2-D, 3-C, 4-A**

UC-2ID-2 Be able to justify the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to their solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.

**Task 38.**

*Read the text and make a match.*

*establish a correspondence between the type of scientific research and its characteristics.*

| | |
|---|---|
| 1. It is aimed at understanding the world without taking into account the practical effect of applying knowledge; | A) applied research; |
| 2. It is aimed at obtaining knowledge necessary for solving practical problems; | B) comprehensive research; |
| 3. It is carried out within the framework of a separate science; | C) fundamental research; |
| 4. During its implementation, researchers strive to cover the maximum possible number of significant parameters of the studied reality. | D) monodis-disciplinary research. |

Write down the selected numbers under the corresponding letters in the table.

| A | B | In | C D |
|---|---|---|---|
| | | | |

**Answer: 1-C, 2-A, 3-D, 4-B**

**Task 39.**

*Read the text and make a match.*

*establish a correspondence between the function of science and its characteristic.*

| | |
|---|---|
| 1. It consists in obtaining new knowledge about nature, man and society as a whole, explaining processes and phenomena, discovering patterns and laws; | A) cognitive; |
| 2. It consists in the fact that thanks to scientific achievements, innovation and new forms of organization of production processes appear; | B) ideological; |
| 3. It consists in the fact that science is an important factor in the development, training and upbringing of people; | C) cultural; |
| 4. It consists in the ability of science to influence people's ideas about the surrounding reality. | D) production line |

Write down the selected numbers under the corresponding letters in the table.

| A | B | C | D |
|---|---|---|---|
| | | | |

**Answer: 1-A, 2-D, 3-C, 4-B**

UC-2ID-3 Master project management in the field of relevant professional activities, including on the basis of digital technologies; distribution of tasks and motivation to achieve goals; management of the development of the project specification, management of the implementation of specialized project work and the process of discussing and finalizing the project; participation in the development of the project specification, development of the project implementation program in professional area; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; determination of requirements for the results of project implementation.

**Task 40.**

*Read the text and make a match.*

*establish a correspondence between the function of science and its characteristic.*

| | |
|---|---|
| 1. A method of passing from general judgments to particular ones using the laws and rules of logic; | A) analysis; |
| 2. A method of passing from knowledge of individual facts to knowledge of general ones; | B) abstraction; |
| 3. A method based on dividing an | C) induction; |

| | |
|---|---|
| object into its component parts; | |
| 4. Mental abstraction from certain properties and concepts. relationships of the studied object with simultaneous identification of sides and properties that are of interest to the researcher. | D) deduction. |

Write down the selected numbers under the corresponding letters in the table.

| A | B | C | D |
|---|---|---|---|
| | | | |

**Answer: 1-D, 2-C, 3-A, 4-B**

UC-6 is able to determine and implement priorities of its own activities and ways to improve them based on self-assessment and lifelong education
UC-6ID-1 Know the content of self-organization and self-education processes, their features and technologies of implementation, based on the goals of improving professional activity.

**Task 41.**
*Read the text and make a match.*
*establish a correspondence between the function of science and its characteristic.*

| | |
|---|---|
| 1. Scientific Abstract | A is a summary of key research ideas and results that serves to present the work at scientific conferences, seminars, or in academic collections. |
| 2. A scientific article | B is a type of abstract that summarizes the essence of the topic being studied in scientific language |
| 3. . A monograph | C is a complete and logically integral work devoted to a specific problem. |
| 4. Theses | D is a scientific work in the form of a book with an in-depth study of one topic or several closely related topics |

Write down the selected numbers under the corresponding letters in the table.

| A | B | C | D |
|---|---|---|---|
| | | | |

**Answer: 1-B, 2-C, 3-D, 4-A**

**Task 42.**
*Read the text and make a match.*
*establish a correspondence between the function of science and its characteristic.*

| | |
|---|---|
| 1. Dialectic | A is a method of cognition based on the recognition of the primacy of the spirit. Accordingly, the process of cognition is interpreted either as a self-knowledge of consciousness, a certain Absolute idea that is initially present in things, or as an analysis of our own feelings |
| 2. Materialistic approach | B is a method based on deducing from false, but artfully and incorrectly presented new judgments-a conclusion that is logically correct, but false in meaning |
| 3. Idealistic approach | C this is a method of philosophical research, in which all things, processes and phenomena are considered flexibly, |

| | |
|---|---|
| | critically, consistently, taking into account their internal contradictions, changes, development, causes and effects, unity and struggle of opposites (Heraclitus, G. Hegel) |
| 4. Sophistry | D is a method of cognition based on the primacy of matter. Accordingly, the process of cognition is considered as a reflection in the consciousness of objective reality |

Write down the selected numbers under the corresponding letters in the table.

| A | B | C | D |
|---|---|---|---|
| | | | |

**Answer: 1-C, 2-D, 3-A, 4-B**

UC-6ID-2 To be able to independently build the process of mastering selected and structured information, including using digital technologies.

**Task 43.**

*Read the text and make a match.*

*establish a correspondence between the function of science and its characteristic.*

| | |
|---|---|
| 1. Synthesis | A is a method of thinking that involves separating a complete subject into its component parts (sides, attributes, properties, or relationships) in order to study them comprehensively. |
| 2. Abstracting | B is a method of thinking that involves combining previously identified parts (sides, features, properties, or relationships) of an object into a single whole. |
| 3. Analysis | C is a method of thinking that consists in distracting from a number of properties and relationships of the phenomenon under study, while simultaneously highlighting the properties and relationships of interest to the researcher. |
| 4. Analogy | D is a method of cognition in which, based on the similarity of objects in some features, they conclude that they are similar in other features. |

Write down the selected numbers under the corresponding letters in the table.

| A | B | C | D |
|---|---|---|---|
| | | | |

**Answer: 1-B, 2-C, 3-A, 4-D**

**Task 44.**

*Read the text and make a match.*

*establish a correspondence between the function of science and its characteristic.*

| | |
|---|---|
| 1. The subject of scientific knowledge | A is the one who implements it, i.e. a creative person (collective) who forms new knowledge. |
| 2. The object of cognition | B is the fragment of reality that cognitive activity is directed at. |
| 3. The purpose of scientific research | B is the sides, properties and relations of |

| | |
|---|---|
| | the object fixed in the life experience and included in the process of practical activity of a person, which are studied with a clearly defined goal in specific conditions of existence and circumstances of life. |
| 4. The subject of knowledge | G is the scientific result that should be obtained as a result of the entire research. |

Write down the selected numbers under the corresponding letters in the table.

| A | B | C | D |
|---|---|---|---|
| | | | |

**Answer: 1-C, 2-B, 3-D, 4-A**

UC-6ID-3 Master the techniques of self-regulation of psychoemotional and functional states.

**Task 45.**

*Read the text and make a match.*

*establish a correspondence between the function of science and its characteristic.*

| | |
|---|---|
| 1. Applied scientific research | A is an experimental or theoretical activity aimed at obtaining new knowledge about the basic laws of the structure, functioning and development of humans and animals, society, and the natural environment. |
| 2. Basic scientific research | B is research aimed primarily at applying new knowledge to achieve practical goals and solve specific problems. |
| 3. Critical research | B is a study that aims to introduce the results of scientific research into practice. |
| 4. The development | of D - is carried out in order to refute the existing theory, model, hypothesis, law, etc., or to check which of the two alternative hypotheses predicts reality more accurately. |

Write down the selected numbers under the corresponding letters in the table.

| A | B | C | D |
|---|---|---|---|
| | | | |

**Answer: 1-B, 2-A, 3-D, 4-C**

**Closed - type tasks for establishing a sequence**

**UC-1-Is able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy**

UC-1ID-1 -Know the methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis.

**Task 46.**

*Read the text and set the sequence.*

Set the sequence of stages of research work:

1) Analysis and design of research results
2) Choosing the research direction
3) Experimental study
4) Theoretical research

5) Implementation of research results in production and determination of the economic effect
**Answer: 2,4,3,1,5**

**Task 47.**
*Read the text and set the sequence.*
*Sets the sequence of periods of development of science, starting from the earliest:*
1) non-classical science;
2) classical science;
3) post-non-classical science;
4) pre-science.
**Answer: 4,2,1,3**

UC-1ID-2 To be able to acquire new knowledge based on analysis, synthesis, etc.; to collect and summarize data on current scientific problems related to the professional field; to search for information and solutions based on actions, experiments, experience, information and communication technologies.

**Task 48.**
*Read the text and set the sequence.*
*set the sequence in the structure of the research paper:*
1) introduction;
2) table of contents.
3) a list of sources.
4) the title page;
5) the main part;
6) applications.
7) conclusion.
**Answer: 4,2,1,5,7,3,6**

**Task 49.**
*Read the text and set the sequence.*
Set the sequence of stages of the experiment methodology:
1) selection of means and number of measurements;
2) selection of varying factors;
3) registration of the results of the experiment;
4) description of the experiment;
5) formulation of goals and objectives.
**Answer: 5,2,1,4,3**

UC-1ID-3 Master the study of the problem of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies; identifying problems and using adequate methods to solve them; demonstrating value judgments in solving problematic professional situations.

**Task 50.**
*Read the text and set the sequence*
Set the sequence of the main stages of scientific research:
1. Theoretical analysis of the problem.
2. Planning your research.
3. Drawing conclusions.

4. Definition of the research topic and justification of its relevance.
5. Conducting research according to the planned plan.
6. Analysis and interpretation of the obtained data.

**Answer: 4,1,2,5,6,3**

**UC-2 is able to manage a project at all stages of its life cycle**

UC-2ID-1 Know the methods of presenting and describing the results of project activities, including those based on digital technologies; methods, criteria and parameters for evaluating the results of project implementation; principles, methods and requirements for project work.

**Task 51.**

*Read the text and set the sequence.*

Set the sequence of basic stages of understanding nature and the world:

1. Analysis of nature, its division into parts (typical for the late Middle Ages and the beginning of Modern times);
2. Direct contemplation of nature as an undifferentiated whole (Greek natural philosophy);
3. Reconstruction of a complete picture based on the known particulars, combining analysis with synthesis (typical for the mature period of scientific development).

**Answer: 2,1,3**

**Task 52.**

*Read the text and set the sequence.*

Set the sequence of stages of the scientific revolution:

1. Normal science – every new discovery can be explained from the standpoint of the prevailing theory.
2. Scientific revolution-formation of a new paradigm
3. Extraordinary science is a crisis in science. Appearance of anomalies (unexplained facts). An increase in their number leads to the emergence of alternative theories. In science, there are many opposing schools of thought.

**Answer: 1,3,2**

UC-2ID-2 Be able to justify the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to their solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.

**Task 53.**

*Read the text and set the sequence.*

Set the sequence of scientific research:

1) definition of the research methodology
2) justification of the relevance of the topic;
3) determination of the subject of research;

**Answer: 2,3,1**

**Task 54.**

*Read the text and set the sequence.*

Set the sequence of stages of statistical research:

1. Collecting the material.
2. Analysis, conclusions, suggestions.

3. Data development.
4. Development of the research program and organizational plan
**Answer: 4,1,3,2**

UC-2ID-3 Master project management in the field of relevant professional activities, including on the basis of digital technologies; distribution of tasks and motivation to achieve goals; management of the development of the project specification, management of the implementation of specialized project work and the process of discussing and finalizing the project; participation in the development of the project specification, development of the project implementation program in professional area; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; determination of requirements for the results of project implementation.

**Task 55.**
*Read the text and set the sequence.*
Set the sequence of the procedure for determining the validity of differences:
1. Formulation of the hypothesis. For example, whether the results have changed depending on the methodology used.
2. Calculation of the value of the selected statistical criterion for the available data.
3. Compare the calculated value of the criterion with the boundary value (tabular) and decide on the reliability of differences. If the empirical value of the criterion is equal to or exceeds the critical value corresponding to 0.05, then the null hypothesis is rejected, i.e. the differences are considered reliable.
4. Select a criterion that fits the proposed statistical model.
5. Determining the significance level. For example, in biological studies, differences are considered significant at a 5% significance level.
6. Definition of a statistical model. They put forward a set of prerequisites regarding the distribution law of the obtained results and its parameters. For example, the results have a normal distribution, the values are independent, etc.
**Answer: 6,1,4, 5, 2, 3**

**UC-6 is able to determine and implement priorities of its own activities and ways to improve them based on self-assessment and lifelong education**
UK-6ID-1 Know the content of self-organization and self-education processes, their features and technologies of implementation, based on the goals of improving professional activity.

**Task 56.**
*Read the text and set the sequence.*
Set the sequence of obtaining academic degrees from the first to the last
1. Candidate of Sciences
2. Master
3. Bachelor
4. Doctor of Science

**Answer: 3,2,1,4**

**Task 57.**
*Read the text and set the sequence.*
Set the sequence of scientific papers by volume, from the smallest to the largest:
1. Article
2. Abstracts

3. Doctoral dissertation
4. PhD thesis

**Answer: 2,1,4,3**

UC-6ID-2 To be able to independently build the process of mastering selected and structured information, including using digital technologies.

**Task 58.**

*Read the text and set the sequence.*

Set the sequence of the main stages of scientific research:

1. Planning your research
2. Analysis and interpretation of the obtained data
3. Setting up a scientific problem
4. Theoretical analysis of the problem
5. Drawing conclusions
6. Conducting the study

**Answer: 1,4,5,2,7,3,6**

**Task 59.**

*Read the text and set the sequence.*

Set the sequence

The sequence of substantiation of the research topic includes the following stages:

1. Description of goals and objectives.
2. Selecting a theme.
3. Study of literature.
4. Formulation of the research novelty.
5. Presentation of expected practical results.
6. Statement of relevance.

**Answer: 2,3,6,1,4,5**

UC-6ID-3 Master the techniques of self-regulation of psychoemotional and functional states.

**Task 60.**

*Read the text and set the sequence.*

Set the sequence of conducting a chronic experiment:

1. Selecting a control.
2. Data processing.
3. Modeling of long-term contact conditions with a substance.
4. Pre-planning.

**Answer: 4,1,3,2**

## OPEN-TYPE TASK

**UC-1-Is able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy**

UC-1ID-1 -Know the methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis.

**Task 61.**
*Read the text and write down a detailed, reasoned answer.*
What is the name of the field of research activity aimed at obtaining new knowledge about nature, society, and thinking?
**Answer: science**

**Task 62.**
*Read the text and write down a detailed, reasoned answer.*
What is the main goal of scientific policy in the education system?
**Answer: training of scientific and pedagogical personnel**

UC-1ID-2 To be able to acquire new knowledge based on analysis, synthesis, etc.; to collect and summarize data on current scientific problems related to the professional field; to search for information and solutions based on actions, experiments, experience, information and communication technologies.

**Task 63.**
*Read the text and write down a detailed, reasoned answer.*
Where did science arise as a form of social consciousness?
**Answer: in ancient Greece**

**Task 64.**
*Read the text and write down a detailed, reasoned answer.*
What are the general laws of nature, society, and thinking called?
***Answer: philosophical sciences***

UK-1ID-3 Master the study of the problem of professional activity using analysis, synthesis and other methods of intellectual activity, including the use of information and communication technologies; identifying problems and using adequate methods to solve them; demonstrating value judgments in solving problematic professional situations.

**Task 65.**
*Read the text and write down a detailed, reasoned answer.*
What sciences do Physics, mechanics, chemistry, and biology belong to?
**Answer: to the natural ones**

**UC-2 is able to manage a project at all stages of its life cycle**
UC-2ID-1 Know the methods of presenting and describing the results of project activities, including those based on digital technologies; methods, criteria and parameters for evaluating the results of project implementation; principles, methods and requirements for project work.

**Task 66.**
*Read the text and write down a detailed, reasoned answer.*
What sciences are aimed at obtaining new knowledge about the basic laws of the structure, functioning and development of man, society, and the environment?
**Answer: basic sciences**

**Task 67.**
*Read the text and write down a detailed, reasoned answer.*

What sciences are aimed at applying new knowledge to achieve practical goals and solve specific problems?
**Answer: Applied Sciences**

UC-2ID-2 Be able to justify the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to their solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.

**Task 68.**
*Read the text and write down a detailed, reasoned answer.*
What is the name of purposeful cognition, the results of which appear in the form of a system of concepts, laws and theories?
**Answer: scientific**

**Task 69.**
*Read the text and write down a detailed, reasoned answer.*
The problem of scientific research is...
**Answer: something that is yet to be discovered, proved, something unknown in science**

UC-2ID-3 Master project management in the field of relevant professional activities, including on the basis of digital technologies; distribution of tasks and motivation to achieve goals; management of the development of the project specification, management of the implementation of specialized project work and the process of discussing and finalizing the project; participation in the development of the project specification, development of the project implementation program in professional area; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; determination of requirements for the results of project implementation.

**Task 70.**
*Read the text and write down a detailed, reasoned answer.*
The purpose of scientific research is...
**Answer: a brief and precise statement of what the author intends to do in the framework of the study**

UC-6 is able to determine and implement priorities of its own activities and ways to improve them based on self-assessment and lifelong education
UC-6ID-1 Know the content of self-organization and self-education processes, their features and technologies of implementation, based on the goals of improving professional activity.

**Task 71.**
*Read the text and write down a detailed, reasoned answer.*
Experiment as one of the main empirical methods of scientific research is...
**Answer: active and purposeful intervention in the course of the studied process**

**Task 72.**
*Read the text and write down a detailed, reasoned answer.*
An axiom is...
**Answer: a proposition that is accepted without logical proof**

UC-6ID-2 To be able to independently build the process of mastering selected and structured information, including using digital technologies.

**Task 73.**
*Read the text and write down a detailed, reasoned answer.*
The method of scientific research is...
**Answer: method of research, method of activity**

**Task 74.**
*Read the text and write down a detailed, reasoned answer.*
A concise description of the original source, which lists the main problems considered in it, is...
**Answer: Abstract or abstract**

UC-6ID-3 Master the techniques of self-regulation of psychoemotional and functional states.

**Task 75.**
*Read the text and write down a detailed, reasoned answer.*
What is the name of the detailed form of written assessment of the finished written work?
**Answer: review**

### 4.1.3.1. List of issues for test

**Competence to be formed:**
UC-1- Is able to carry out a critical analysis of problematic situations based on a systematic approach, to develop a strategy for manipulation
UC-1 ID-1To know methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis
UC-1 ID-2 To be able to gain new knowledge based on analysis, synthesis, etc.; collect and summarize data on current scientific problems, related to the professional field; search for information and solutions based on actions, experiment, experience, and information and communication technologies.
UC-1 ID-3 To possess skills of evaluation of the problem of professional activity with the analyze of synthesis and other methods of intellectual activity, including the use of information and communication technologies; identification of problems and the use of adequate methods to solve them; demonstration of value judgments to solve problematic professional situations
1. Define the concept of "science." What does the concept of "veterinary science" include?
2. What features of science as a form of knowledge of the world do you know?
3. What is research activity in general?
4. Tell us about the most important features of scientific research.
5. Characterize the object and subject of scientific research.
6. What conditionally distinguished groups of disciplines are included in the complex of veterinary science? Give them a brief characterization.
7. Tell us about the main historical stages of the formation of veterinary science.
8. Tell us about the development of veterinary science in Russia.
9. Describe the current state of veterinary science in the world.
10. Give a brief description of the main types of scientific research for the intended purpose
11. What two levels of knowledge are distinguished in the methodology of scientific research? Characterize them.
12. By what parameters do the levels of scientific knowledge differ?
13. Give a brief description to groups of methods of scientific cognition.
14. Give a brief description of the general scientific methods of scientific knowledge.

15. Define "analysis" and "synthesis." How are these general scientific methods used in veterinary science?
16. Define "induction" and "deduction." How are these general scientific methods used in veterinary science?
17. Tell us about the logical and historical general scientific methods.

**Competence to be formed:**

**UC-2. Is able to manage the project at all stages of life cycle**

UC-2 ID-1 To know methods of presentation and description of the project activities results; methods, criteria and parameters for evaluation of the results of project implementation; principles, methods and requirements for project work.

UC-2 ID-2 To be able to: substantiate the theoretical and practical significance of the results obtained; check and analyze project documentation; predict the development of processes in the project professional field; put forward innovative ideas and non-standard approaches to its solution in order to implement the project; calculate qualitative and quantitative results, deadlines for project work.

UC-2 ID-3 To possess skills of: project management in the field of relevant professional activity: assignment of tasks and motivation to achieve goals; management of the development of the project's terms of reference, management of the implementation of specialized project work, its negotiation and datalisation; participation in the development of the project's terms of reference. Development of the project implementation program in the professional field; organization of professional discussion of the project, participation in the management of project documentation; design of the project implementation schedule; definition of the requirements for the results of the project.

1. What do you know about the use of analogy and simulation methods in veterinary medicine.
2. Characterize particular or specific methods common in veterinary medicine.
3. What is meant by the term "private technique"? What is the purpose of using private methods in veterinary medicine?
4. Tell us about empirical research methods.
5. Define "observation" and "experiment"
6. Tell us about the peculiarities of observation in veterinary medicine.
7. What characteristic features of the experiment do you know?
8. Tell us about the objective and theoretical sides of the experiment.
9. How is the preparation (planning) for the experiment?
10. Tell us about the peculiarities of preparing and performing experiments in veterinary medicine.
11. What are the criteria for the need to use laboratory animals for scientific and educational purposes?
12. What are the alternatives to biotesting?
13. Give a brief description of the main stages of the experiment.
14. What are the basic principles for obtaining and analyzing experimental data?
15. How are the results obtained during the experiment processed and documented?
16. What levels of research activity are used in veterinary medicine?
17. Tell us about the main conditionally distinguished groups of disciplines in veterinary medicine as a complex of sciences.
18. What general scientific research methods are used in veterinary research activities?

**Competence to be formed:**

UC-6. Is able to determine and implement the private priorities activities and ways to improve them based on self-assessment and life along education

UC-6 ID-1 To know: the content of the processes of self-organization and self-education, its features and technologies of implementation, based on the goals of improving professional activity.
UC-6 ID-2 To be able to build the self process of mastering selected and structured information, including digital technologies.
UC-6 ID-3 To possess skills of: techniques of self-regulation of psycho-emotional and functional status.

1. What do you know about the use of analogy and simulation methods in veterinary medicine.
2. Characterize particular or specific methods common in veterinary medicine.
3. What is meant by the term "private technique"? What is the purpose of using private methods in veterinary medicine?
4. Tell us about empirical research methods.
5. Define "observation" and "experiment"
6. Tell us about the peculiarities of observation in veterinary medicine.
7. What characteristic features of the experiment do you know?
8. Tell us about the objective and theoretical sides of the experiment.
9. How is the preparation (planning) for the experiment?
10. Tell us about the peculiarities of preparing and performing experiments in veterinary medicine.
11. What are the criteria for the need to use laboratory animals for scientific and educational purposes?
12. What are the alternatives to biotesting?
13. Give a brief description of the main stages of the experiment.
14. What are the basic principles for obtaining and analyzing experimental data?
15. How are the results obtained during the experiment processed and documented?
16. What levels of research activity are used in veterinary medicine?
17. Tell us about the main conditionally distinguished groups of disciplines in veterinary medicine as a complex of sciences.
18. What general scientific research methods are used in veterinary research activities?

## 4. METHODOLOGICAL MATERIALS DEFINING THE PROCEDURES FOR ASSESSING KNOWLEDGE, SKILLS AND ABILITIES AND WORK EXPERIENCE CHARACTERIZING THE STAGES OF COMPETENCE FORMATION

Criteria for assessing the knowledge of students during testing:

The test result is evaluated on a percentage rating scale. Each student is offered a set of test tasks of 25 questions:

- The mark "**excellent**" is 25-22 correct answers.
- The mark "**good**" is 21-18 correct answers.
- The mark "**satisfactory**" is 17-13 correct answers.
- The mark "**unsatisfactory**" is less than 13 correct answers

Criteria for assessing students' knowledge during report:

- The mark "**excellent**" - the problem is identified and its relevance is justified; an analysis of various points of view on the problem under consideration is made and one's own position is logically stated; conclusions are formulated, the topic is fully disclosed, the volume is maintained; the requirements for external design are met, the basic requirements for the report are fulfilled.
- The mark "**good**" - mistakes have been made. In particular, there are inaccuracies in the presentation of the material; there is no logical consistency in judgments; the volume of the

report is not maintained; there are omissions in the design, there are significant deviations from the requirements for the presentation of materials.

- The mark "**satisfactory**" - the topic is only partially covered; factual errors were made in the content of the report; there are no conclusions, the topic of the report is not disclosed.
- The mark "**unsatisfactory**" - there is a significant misunderstanding of the problem or the report is not submitted.

Criteria for assessing the knowledge of students during the survey:

- The mark "**accepted** " must correspond to the parameters of any of the positive ratings ("excellent", "good", "satisfactory").
- The mark "**not accepted** " rating should correspond to the parameters of the "unsatisfactory" rating.
- The mark "**excellent**" – all types of educational work provided for in the curriculum have been completed. The student demonstrates the compliance of knowledge, skills, and abilities with the indicators given in the tables, operates with acquired knowledge, skills, and applies them in situations of increased complexity. At the same time, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations may be allowed.
- The mark "**good**" – all types of educational work provided for in the curriculum have been completed. The student demonstrates the compliance of knowledge, skills, and abilities with the indicators given in the tables, operates with acquired knowledge, skills, and applies them in standard situations. At the same time, minor errors, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations may be made.
- Mark "**satisfactory**" – one or more types of educational work provided for in the curriculum have not been completed. The student demonstrates incomplete compliance of knowledge, skills, and abilities with the indicators given in the tables, significant errors are made, a partial lack of knowledge, skills, and skills is manifested in a number of indicators, the student experiences significant difficulties in operating with knowledge and skills when transferring them to new situations. –
- The mark "**unsatisfactory**" – the types of educational work provided for in the curriculum have not been completed. demonstrates incomplete compliance of knowledge, skills, and abilities given in the tables of indicators, significant errors are made, a lack of knowledge, skills, and skills is manifested for a large number of indicators, the student experiences significant difficulties in operating knowledge and skills when transferring them to new situations

Criteria of knowledge during the test

- The mark "**accepted** " must correspond to the parameters of any of the positive ratings ("excellent", "good", "satisfactory").
- The mark "**not accepted** " rating should correspond to the parameters of the "unsatisfactory" rating.
- The mark "**excellent**" – all types of educational work provided for in the curriculum have been completed. The student demonstrates the compliance of knowledge, skills, and abilities with the indicators given in the tables, operates with acquired knowledge, skills, and applies them in situations of increased complexity. At the same time, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations may be allowed.
- The mark "**good**" – all types of educational work provided for in the curriculum have been completed. The student demonstrates the compliance of knowledge, skills, and abilities with the indicators given in the tables, operates with acquired knowledge, skills, and applies them

in standard situations. At the same time, minor errors, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations may be made.

- Mark **"satisfactory"** – one or more types of educational work provided for in the curriculum have not been completed. The student demonstrates incomplete compliance of knowledge, skills, and abilities with the indicators given in the tables, significant errors are made, a partial lack of knowledge, skills, and skills is manifested in a number of indicators, the student experiences significant difficulties in operating with knowledge and skills when transferring them to new situations. –
- The mark **"unsatisfactory"** – the types of educational work provided for in the curriculum have not been completed. demonstrates incomplete compliance of knowledge, skills, and abilities given in the tables of indicators, significant errors are made, a lack of knowledge, skills, and skills is manifested for a large number of indicators, the student experiences significant difficulties in operating knowledge and skills when transferring them to new situations

## 5. ACCESSIBILITY AND QUALITY OF EDUCATION FOR DISABLED PEOPLE

If necessary, persons with disabilities and persons with disabilities are given additional, time to prepare an answer for the test.
When conducting the procedure for evaluating the learning outcomes of disabled people and persons with disabilities, their own technical means can be used.

The procedure for evaluating the learning outcomes of disabled people and persons with disabilities in the discipline provides for the provision of information in forms adapted to the limitations of their health and perception of information:

| | |
|---|---|
| For people with visual impairments: | – in printed form in enlarged font;<br>– in the form of an electronic document. |
| For people with hearing impairments: | – in printed form;<br>– in the form of an electronic document. |
| For people with disorders of the musculoskeletal system: | – in printed form, the device;<br>– in the form of an electronic document. |

When conducting the procedure for evaluating the learning outcomes of disabled people and persons with disabilities in the discipline, it ensures that the following additional requirements are met, depending on the individual characteristics of the students:

a) instructions on the procedure for conducting the assessment procedure are provided in an accessible form (orally, in writing);

b) an accessible form of assignment of assessment tools (in printed form, in printed form in enlarged font, in the form of an electronic document, assignments are read out by the teacher);

c) an accessible form of providing answers to tasks (written on paper, a set of answers on a computer, orally).

If necessary, for students with disabilities and the disabled, the procedure for evaluating the results of training in the discipline can be carried out in several stages.

The procedure for evaluating the learning outcomes of disabled people and persons with disabilities is allowed using distant learning technologies.