

MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
Federal State Autonomous Educational Institution of Higher Education
National Research Lobachevsky State University of Nizhny Novgorod

APPROVED

by the decision of the Academic
Council of the UNN Minutes of
02.12.2024 г. № 10

Working program of the discipline

«HISTORY AND PHILOSOPHY OF SCIENCE»

Level of higher education

Training of scientific and scientific-pedagogical personnel

Graduate program

Sociology of Management

Scientific specialty

5.4.7. Sociology of Management

Form of training

Full-time

Nizhny Novgorod

2025

1. Place and purpose of the discipline in the structure of the HPE

The discipline "History and Philosophy of Science" is one of the mandatory disciplines of the educational component of the postgraduate program and is studied in the first year of study in the first and second semester.

The course analyzes the problem of the emergence of science, examines the social context of science development, genesis and development of the disciplinary structure of scientific knowledge, its current state; studies the identity and difference of natural-science, social-humanitarian and technical knowledge, analyzes the basic mechanisms and temporal problems of scientific cognitive activity.

The purpose of the course is:

- to teach the effective use of modern scientific methodology in a specific scientific study;
- To develop in students an awareness of the organic connection that exists between philosophy and the specific sciences;
- form the ability to extrapolate methods of scientific knowledge from one area of scientific knowledge to another;
- Develop skills for assessing the social consequences of the results of scientific activity;
- to teach how to use the basic mechanisms of cognitive activity in the course of a specific scientific study.

2. Planned learning outcomes for the discipline

A graduate who has mastered the program must

Know:

- methods of critical analysis and evaluation of modern scientific achievements, as well as methods of generating new ideas when solving research and practical problems, including those in interdisciplinary areas;
- methods of research activities;
- the main concepts of modern philosophy of science, the main stages of the evolution of science, functions and foundations of the scientific picture of the world;
- the ethical principles of the teaching profession;
- the essence of research activity and scientific creativity;
- methods and forms of organization of pedagogical research in education;
- strategies, tactics, methods and forms of organization of information search, pedagogical experiment, psychological and pedagogical diagnostics;
- The problems of modern psychological and pedagogical research;

To be able to:

- to use planning technologies in professional activities in the field of scientific research;
- to make personal choices in moral-value situations that arise in the professional sphere of activity;
- follow the basic norms accepted in scientific and pedagogical communication, taking into account international experience;
- formulate the concept of research, identify its stages;
- to organize information retrieval and experimental research work;

Own:

- skills in analyzing methodological problems encountered in solving research and practical problems, including those in interdisciplinary areas;

- skills of critical analysis and evaluation of modern scientific achievements and results of research and practical tasks, including those in interdisciplinary areas;
- skills in analyzing the main worldview and methodological problems, including those of interdisciplinary nature, arising in science at the present stage of its development;
- technologies of planning in professional activities in the field of scientific research;
- the notions of categories and problems of professional ethics;
- methods of designing, organizing and evaluating the implementation of the stages of the educational experiment with the use of innovative technologies.

3. Structure and content of the discipline.

The course is divided into two credit units, 72 hours in total, 64 hours of which are the contact work of the student with the teacher (36 hours of lectures, 28 hours of workshops (seminars, scientific and practical classes, laboratory work, etc.), 8 hours are self-study of the student. At the end of the discipline graduate students pass the test and exam (candidate examination).

Table 1

Structure of the discipline

| Name of the section of the discipline | Total hours | Including | | | | | Independent work of the student, hours |
|---|-------------|----------------------|----------------------|-------------------------|--------|-------|--|
| | | Contact work, hours | | | | | |
| | | Lecture-type classes | Seminar-type classes | Laboratory-type classes | Advice | Total | |
| 1. general problems of history and philosophy of science | 36 | 36 | - | - | - | 36 | - |
| 2a. Philosophical Problems of the Social and Human Sciences (Or 2b. Philosophical problems of of mathematical и natural sciences) | 36 | - | 28 | - | - | 28 | 8 |
| Intermediate attestation: credit in semester 1 and a candidate exam in semester 2 semester | | | | | | | 8 |
| Total | 72 | 36 | 28 | - | | | 8 |

Table 2**Content of the discipline**

| No n/a | Name of the discipline | Contents of the section | Form of the lesson | Form of current control* |
|-------------------|---|---|-------------------------------|---|
| 1 | General Problems of the History and Philosophy of Science | The subject and basic concepts of modern philosophy of science. Science in the culture of modern civilization. Appearance of science and main stages of its historical evolution. Structure of scientific knowledge. Dynamics of science as a process of scientific knowledge creation. Scientific traditions and scientific revolutions. Types of scientific rationality. Features of the modern stage of development of science. Prospects for the technological revolution. Science as a social institution. | Lectures | Essays on problematic and socially important issues in the development of science and scientific-technological progress |
| 2a. | Philosophical Problems of the Social and Human Sciences | Social-humanitarian knowledge in the structure of modern scientific knowledge. Specificity of cognitive mechanism in social-humanitarian knowledge. The role of socio-humanitarian knowledge in formation of modern type of rationality. Science as communication. Communicative aspect of socio-humanitarian knowledge. Methods and forms of scientific investigation in social-humanitarian knowledge. Specific methods of cognition of social-humanitarian sciences. New methods and their role in modern social-humanitarian knowledge. | Seminars | Presentation of the topic of the essay, writing and defending the essay |
| 26. | Philosophical Problems in the Mathematical and Natural Sciences | Philosophical-methodological and historical problems of mathematization of knowledge. The place of physics in the system of natural-science knowledge. Philosophical and methodological aspects of the concept of complexity. "Co-evolution of computational means and scientific methods. Structure of modern chemical theory. Correlation The problem of physics and chemistry. The Problem | Seminars | Presentation of the topic of the essay, writing and defending the essay |

| | | | | |
|--|--|---|--|--|
| | | systemic organization in biology. From Biological Evolutionary Theory to Global Evolutionary Theory. lutionism. | | |
|--|--|---|--|--|

4. Forms of organization and control of students' independent work

In the first semester on the results of the lectures of the section "General problems of the history and philosophy of science" graduate students prepare essays on problematic and socially significant issues of the development of science and scientific and technological progress, the assessment of which is the basis for the credit. The topic of the essay is free.

5. Assessment tools for certification of the discipline

Assessment of the discipline takes the form of credit by the results of the first semester and in the form of a candidate exam for the annual course.

Credit (Intermediate Attestation 1) is awarded according to the results of the evaluation of the essay. When checking the essay, the teacher evaluates the postgraduate student's interest in the development of science and scientific cognition, the ability to independently identify points of active growth of new knowledge, problem situations of scientific research organization, the ability to critically analyze and compare the existing philosophical and methodological concepts.

Essay Grading Criteria:

1. Completeness of disclosure of the topic and problems.
2. The breadth of erudition, knowledge of the pattern of development of science.
3. Logical and coherent presentation, literacy.
4. Consistency, consistency of judgment, and validity of conclusions

dov.

Description of the essay grading scale:

| Evaluation , scores | The level of preparedness, characterized by the assessment |
|----------------------------|--|
| 1 | the key problem is not highlighted; The established approaches are not comprehended; examples from everyday life relevant to the topic and problem are given; the main structural elements of the work are missing; options for solving the problem are not highlighted; conclusions are in the nature of an emotional assessment |
| 2 | all the definitions are given, but in each case the meaning is not quite accurately conveyed; the key problem is highlighted; not fully set out the established approaches; history and theories related to the problem are not fully disclosed; examples from everyday experience relevant to the topic and the problem are given; the main structural elements of the work are highlighted; options for solutions and aspects of the problem are not highlighted; The author's conclusions are explicit, but the conclusions are ha-emotional appraisal |
| 3 | the key problem is highlighted; the established approaches are critically understood; |

| | |
|---|---|
| | <p>The history and theories related to the problem are explained in general; examples of research relevant to the topic and the problem are given; highlighted the main structural elements of the work; highlighted options for solutions, aspects of the problem; The author's conclusions are explicit, the conclusions summarize previous evaluations, the conclusions are of the nature of an evaluation with a common sense</p> |
| 4 | <p>the key problem is highlighted; The existing approaches are critically analyzed, classifications are used, and aspects of the concepts are highlighted; The history and theories related to this problem are fully disclosed; examples of research relevant to the topic and the problem are given; highlighted the main structural elements of the work; highlighted options for solutions, aspects of the problem; the author's conclusions are explicitly formulated in the conclusions summarize previously expressed evaluations, the conclusions are of a theological nature, the conclusions contain the author's original judgments, the author consciously notes the novelty, the originality of his con- dov</p> |
| 5 | <p>the key problem is highlighted; The existing approaches are critically analyzed, classifications are used, and aspects of the concepts are highlighted; The history and theories related to this problem are fully disclosed; examples of research relevant to the topic and the problem are given; highlighted the main structural elements of the work; highlighted options for solutions, aspects of the problem; The author's conclusions are explicitly formulated, the conclusions summarize previously expressed assessments, the conclusions are of a theological character, the conclusions contain the author's original judgments, the author consciously notes the novelty, the originality of his conclusions; Creative approach to the presentation of the material, including: attempts to to bring in unexpected examples, metaphors, authorial arguments, and problem formulations that go beyond basic definitions</p> |

Scores 1 and 2 correspond to "fail," scores 3, 4, and 5 correspond to "pass".

The Candidate's Examination in the discipline consists of two sections:

- 1) General Problems in the Philosophy of Science;
- 2) The history and philosophy of a particular science.

The examination evaluation consists of the assessment of knowledge in general problems of history and philosophy of science and evaluation of the degree of mastering the course "History and Philosophy of a particular science". The criterion of the summative assessment is the degree of mastering the content of the discipline and the ability to practical application of the worldview, general scientific and methodological principles in a particular scientific.

The procedure of the examination test involves the postgraduate student's answer to the questions of the examination ticket, which the committee hears. After the postgraduate student's report and answers to the questions, the committee discusses the quality of the answer and accepts

the decision on the assessment to be made in the protocol. Particular attention is paid to the degree of comprehension of the processes of development of science and its current problems, the ability to present one's own point of view in the context of other positions.

In evaluating the answer, the committee members consider the following basic criteria:

- the level of theoretical knowledge (not only the formal reproduction of information, but also the understanding of the subject, which is confirmed by correct answers to additional, clarifying questions posed by the committee members);
- Ability to use theoretical knowledge in the analysis of specific problems and situations;
- quality of presentation, i.e. the validity, clarity, and logic of the report, as well as its completeness (i.e. its content, not excluding conciseness);
- the ability to make intra- and interdisciplinary connections;
- originality of thought, familiarity with additional literature, and other factors.

Grading Criteria:

Assessment of *excellent* - exhaustive knowledge of the program material, understanding the essence of the processes and phenomena under consideration, solid knowledge of the main provisions of the discipline, the ability to apply the conceptual apparatus in the analysis of current problems. Logically consistent, substantive, concrete answers to all questions of the examination ticket and additional questions of the committee members, fluent knowledge of sources.

Assessment *good* - sufficiently complete knowledge of the program material, correct understanding of the essence of the questions, knowledge of definitions, ability to formulate theses and arguments. The answers are consistent and generally correct, although there are inaccuracies, superficial familiarity with some theories and facts, a rather formal attitude to the recommended materials for preparation.

Assessment *satisfactory* - fragmented knowledge, vague ideas about the subject. The answer contains both correct statements and errors, possibly gross. The test taker is poorly oriented in the learning material, cannot eliminate inaccuracies in his answer even after leading questions of the committee members.

Unsatisfactory grade - no answer to at least one of the basic questions, or gross errors in the answers, complete lack of understanding of the meaning of the problems, not enough full command of terminology.

List of essay topics

- Scientific picture of the world and general scientific principles and concepts (systematicity, non-linearity, uncertainty, probability, additionality, fluctuation, entropy, dynamical chaos, bifurcation, etc.)
- Technological progress and the development of the sciences. Are there limits to the growth of civilization?

Sample questions of the candidate exam

- The relationship between philosophy and science: basic concepts.
- The Problem of the Foundations of Science.
- Methods of cognition of the social and human sciences.

6. Educational and methodological and informational support of the discipline

Basic Literature:

1. Arkhiereev, N. Formal Philosophy of Science: Statement and Set-theoretic Approaches / N. Arkhiereev // Logic and Philosophy Studies. – 2021. – Vol. 19. – No 1. – P. 91-94. – EDN GTELOQ. (available in EBS "Elibrary", access mode: <https://www.elibrary.ru/item.asp?id=46630519>) – in English
2. International scientific review of the problems of philosophy, sociology, history and political science : Collection of scientific articles I International correspondence scientific specialized conference, Boston, USA, 2018. – 26 p. – ISBN 978-1-948507-17-2. – EDN USQSFE. (available in EBS "Elibrary", access mode: <https://www.elibrary.ru/item.asp?id=35163801>) – in English
3. Rusu, D. C. Francis Bacon and his Fate in the History and Philosophy of Science, 2010-2020 / D. C. Rusu // Epistemology & Philosophy of Science. – 2021. – Vol. 58. – No 3. – P. 206-220. – DOI 10.5840/eps202158353. – EDN ARDWVR. (available in EBS "Elibrary", access mode: <https://www.elibrary.ru/item.asp?id=46709254>) – in English
4. Tangirov, N. A. Problems of development of the noosphere concept in philosophy and science / N. A. Tangirov // Theoretical & Applied Science. – 2020. – No 5(85). – P. 506-512. – DOI 10.15863/TAS.2020.05.85.92. – EDN BGBFQN. (available in EBS "Elibrary", access mode: <https://www.elibrary.ru/item.asp?id=44843486>) – in English
5. History and Philosophy of Science. Kn. 4 [Electronic resource] / L.A. Tutov, M.A. Sazhina, G.A. Belov, L.B. Logunova, L.I. Semennikova, A.V. Sidorov - M. : Publishing house of Moscow State University. Moscow State University Publisher, 2010. - <http://www.studentlibrary.ru/book/ISBN9785211056053.html>
6. History and Philosophy of Science. Book 3: History and Philosophy of Sociology [Electronic resource]: textbook / D.S. Klement'ev, L.M. Putilova, E.M. Osipov, T.P. Lebedeva - Moscow: Moscow State University Publisher, 2009. - <http://www.studentlibrary.ru/book/ISBN9785211056039.html>
7. History and Philosophy of Science. Book 2: History and Philosophy of Management Sciences [Electronic resource] / G.I. Marinko, E.M. Panina - M. : Publishing house of Moscow State University. Moscow State University Publisher, 2009. - <http://www.studentlibrary.ru/book/ISBN9785211056015.html>
8. History of science [Electronic resource] : Tutorial / V.A. Solomatin. - M. : PERSE, 2002. - <http://www.studentlibrary.ru/book/ISBN5929201153.html>
9. Philosophy of Science: textbook [Electronic resource] / Ivin A.A., Nikitina I.P. - M. : Prospect, 2016. - <http://www.studentlibrary.ru/book/ISBN9785392200924.html>
10. Actual Problems of the Philosophy of Science [Electronic resource] / M.I. Terekhina, G.P. Trofimova, M.H. Khajarov, V.I. Sorokina - M.: FLINTA, 2015. - <http://www.studentlibrary.ru/book/ISBN9785976519695.html>
11. Logic and methodology of science: Modern humanitarian cognition and its perspectives [Electronic resource] : textbook / A.V. Pavlov - M. : FLINTA, 2010. - <http://www.studentlibrary.ru/book/ISBN9785976508941.html>
12. Actual Problems of Modern Natural Science [Electronic resource] : textbook / Yu.A. Nefediev, V.S. Borovskikh, S.A. Demin et al. - Kazan : Kazan University Press, 2015. - <http://www.studentlibrary.ru/book/ISBN9785000193297.html>
13. Methodology of Scientific Research [Electronic resource] : Study Book / Ivanova T.B., Kozlov A.A., Zhuravleva E.A. - M.: RUDN Publisher, 2012. - <http://www.studentlibrary.ru/book/ISBN9785209036579.html>
14. Logic, methodology, argumentation in scientific research [Electronic resource] / Demina L.A., Przhilensky V.I. - M. : Prospect, 2017. - <http://www.studentlibrary.ru/book/ISBN9785392242641.html>
15. Argumentation in Communication Processes. Pro et contra [Electronic resource]. / Ivin A.A. - M. : Prospect, 2017. - <http://www.studentlibrary.ru/book/ISBN9785392210718.html>

16. Contradiction is like death. Philosophical essay on logical contradiction [Electronic resource] / Ivin A.A. - M. : Prospect, 2017. - <http://www.studentlibrary.ru/book/ISBN9785392211173.html>
17. Philosophy of Collective Creation. History, language, morality, religion, games, ideology, etc. [Electronic resource] / Ivin A.A. - M. : Prospect, 2017. - <http://www.studentlibrary.ru/book/ISBN9785392218110.html>
18. Modern Philosophy. Intellectual Technologies of the XXI Century [Electronic resource] / Przhilensky V.I. - M. : Prospect, 2017. - <http://www.studentlibrary.ru/book/ISBN9785392218141.html>
19. Theory of cognition. Hermeneutic methodology. Architecture of understanding [Electronic resource] / Ilyin V. V. - M. : Prospect, 2017. - <http://www.studentlibrary.ru/book/ISBN9785392247042.html>
20. Philosophy and law [Electronic resource] / Artemov V.M., Gunibsky M.Sh., Daletsky Ch.B., Demina L.A. - M. : Prospect, 2017. - <http://www.studentlibrary.ru/book/ISBN9785392238620.html>
21. Knowledge. Society. Meaning [Electronic resource] / Demina L.A., Przhilenskii V.I. - M. : Prospect, 2017. - <http://www.studentlibrary.ru/book/ISBN9785392218028.html>
- Philosophy of Language and Communication [Electronic Resource] / Mechkovskaya N.B. M. : FLINT, 2017. - <http://www.studentlibrary.ru/book/ISBN9785976525641.html>
22. The most important molecule: From the structure of DNA to the biomedicine of the XXI century [Electronic resource] / Frank-Kamenetsky M. - M. : Alpina non-fiction, 2013, 2017. - <http://www.studentlibrary.ru/book/ISBN9785916716481.html>
23. Bioethics. Philosophy of Life Preservation and Health Preservation [Electronic Resource] : textbook / Khrustalev Y.M. - M. : GEOTAR-Media, 2013. - <http://www.studentlibrary.ru/book/ISBN9785970426272.html>
24. Mathematics in the Context of Philosophical Problems [Electronic resource] : Tutorial / Yashin B.L. - M. : Prometheus, 2012. - <http://www.studentlibrary.ru/book/ISBN9785426301115.html>

List of resources of the information and telecommunication network

"Internet" necessary for mastering the discipline www.edu.ru -

website of the Ministry of Education of the Russian Federation

<http://elibrary.ru/defaultx.asp> - scientific electronic library "Elibrary"

www.diss.rsl.ru - electronic library of dissertations <http://anthropology.ru>

-electronic journal "Philosophical Anthropology"

<http://iph.ras.ru> - Journal of Philosophy of the Institute of Philosophy of the Russian Academy of Sciences

<http://phenomen.ru> - Philosophy Online

<http://vphil.ru/> - Journal of Philosophy

Matters

7. Material and technical support of the discipline

- rooms for lectures, seminars, group and individual consultations, current control and interim certification, as well as rooms for storage and preventive maintenance of equipment and rooms for students' independent work, equipped with computers with the ability to connect to the Internet and provide access to the electronic information and educational environment of UNN;
- material and technical support necessary for the implementation of the discipline, including laboratory equipment;
- licensed software: *Windows, Microsoft Office*;
- Students with disabilities are provided with electronic and/or printed educational resources in forms adapted to their disabilities.

The working program of the discipline is drawn up in accordance with the curriculum, the Regulations on the training of scientific and scientific-pedagogical personnel in graduate school (Adjuncture) (Russian Federation Government Decree of 30.11.2021, № 2122), the federal state requirements for the structure of training programs for scientific and scientific-pedagogical personnel in graduate school (Adjunct) (Order of the Ministry of Education and Science of Russia from 20.10.2021). № 951).

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Program approved at the meeting of the educational-methodical commission of the Faculty of Social Science 15.12.2023, protocol №7.