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**МИНОБРНАУКИ РОССИИ**  
**Федеральное государственное бюджетное образовательное**  
**учреждение высшего образования**  
**«Юго-Западный государственный университет»**  
**(ЮЗГУ)**

Кафедра философии и социологии

УТВЕРЖДАЮ

Проректор по учебной работе

О.Г. Локтионова

2016 г.



## ИСТОРИЯ И ФИЛОСОФИЯ НАУКИ

методические указания к практическим занятиям  
для аспирантов всех направлений подготовки

Курск 2016

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Рецензент  
Д.и.н., профессор В.В. Коровин

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Методические указания соответствуют требованиям федеральных государственных образовательных стандартов высшего образования для подготовки аспирантов.

Материал будет полезен преподавателям и аспирантам всех направления подготовки.

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305040 Курск, ул. 50 лет Октября, 94.

**The purpose of teaching the discipline "History and philosophy of science"** is to understand the objective logic of the history and philosophy of science, their place and role in culture, to get acquainted with the main directions, schools and stages of development of science; to form a holistic view of the problems of modern philosophy of science; to develop skills of seeing and taking into account the philosophical foundations of scientific research and its results; to form an active civil position of a young scientist.

**Tasks of studying the discipline "History and philosophy of science":**

- to study scientific knowledge in a broad social, cultural and historical context;
- learn the basic concepts of the history of science;
- understand the philosophical and methodological foundations on which scientific knowledge is based;
- to find out the essence, laws and logic of science development;
- to study the main stages of the formation of science and scientific rationality;
- to master the problems of the main directions of modern philosophy of science;
- develop skills of critical methodological analysis of problems of modern science.

## **Practical training plans**

### **Lesson 1. Philosophy of science its subject and functions (2 hours)**

#### **1. Philosophy of science as a special type of interdisciplinary knowledge.**

2. Evolution of philosophical approaches to the analysis of science.
3. Foundations of science. The structure of the bases. The ideals and norms of research and its socio-cultural dimension. The system of ideals and norms as a scheme of the method of activity.
4. The role of philosophical ideas and principles in the justification of scientific knowledge. Philosophical ideas as a heuristic of scientific search.
5. Philosophical justification as a condition for the inclusion of scientific knowledge in culture.

Basic and additional educational literature

a) main literature:

1. Stepin, V. S. History and philosophy of science [Text] / V. S. Stepin. Moscow: Academic project, 2012. 422 p.
2. Guseva, E. A. Philosophy and history of science [Text] / E. A. Guseva. - Moscow: INFRA-M, 2013. - 126 p.
3. Mineev, V. V. Introduction to the history and philosophy of science [Text] / V. V. Mineev. - 4th ed., transl. and add. - M., Berlin: Direct-Media, 2014. - 639 p.
4. Ostrovsky, E. V. History and philosophy of science [Text] / E. V. Ostrovsky, M.: UNITY, 2012. - 159 p.
5. Buchilo N. F. History and philosophy of science [Text] / N. F. Buchilo. M.: Prospect, 2014. - 427 p.

b) additional literature:

6. Bariev, R. H. History and philosophy of science: (General problems of philosophy of science): the tutorial (short course) / R. H. Bariev, G. M. Levin, V. Manko ; under the editorship of Y. V. Manko. - Saint Petersburg: publishing house "Petropolis", 2009. - 112 p. - Bibliogr. in the book-ISBN 978-5-9676-0217-7; The same [Electronic resource]. - URL: <http://biblioclub.ru/index.php?page=book&id=255794> (25.02.2015).

7. Bezveselnaya, Z. V. Philosophy of science: textbook / Z. V. Bezveselnaya, V. S. Kozmin, A. I. Samsin; edited by Z. V. Bezveselnaya. - Moscow: publishing house "Jurisprudence", 2009. - 213 p. - ISBN 978-

5-9516-0435-4; The same [Electronic resource]. - URL: <http://biblioclub.ru/index.php?page=book&id=128340> (25.02.2015).

8. Devyatova, S. V. Phenomenon of science / S. V. Devyatova, V. I. Kuptsov // Social and humanitarian knowledge. - 2008. - No 6. - P. 110-130; 2009. - No 1. - P.153-177 ; No 2. - P. 127-156.

9. Rozov, M. A. Object of research-science / M. A. Rozov, Yu. a. Schreider, N. I. Kuznetsova // Higher education in Russia. - 2012.

- No 6. - Pp. 144-162.

## **Lesson 2. The relationship between philosophy and science. Main problems of modern philosophy (2 hours)**

1. Subject, tasks and functions of philosophy in culture.
2. Philosophy as a rational form of worldview. The nature of philosophical knowledge and the pluralism of philosophical systems.
3. Unity and difference of philosophical and concrete-scientific ways of knowledge, private-scientific and philosophical theories.
4. the Main concepts of the relationship between philosophy and science: reductionist (natural philosophy and positivism), anti-interactive, dialectical.
5. Mechanism and forms of interrelation of philosophy and science.

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a) main literature:

1. Stepin, V. S. History and philosophy of science [Text] / V. S. Stepin. Moscow: Academic project, 2012. 422 p.
  2. Guseva, E. A. Philosophy and history of science [Text] / E. A. Guseva. - Moscow: INFRA-M, 2013. - 126 p.
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  5. Buchilo N. F. History and philosophy of science [Text] / N. F. Buchilo. M.: Prospect, 2014. - 427 p.
- b) additional literature:
6. Actual problems of philosophy of science [Text] / [ed. by E. V. Girusov]. - Moscow: Progress-Tradition, 2007. - 344 p.
  7. Stepin V. S. Philosophy of science. Common problems [Text] :

textbook / V. S. Stepin. - M.: Gardariki, 2007. - 383 p

8. Modern philosophical problems of natural, technical and social and humanitarian Sciences: textbook / [V. V. Mironov et al.]; ed. V. V. Mironov. - M.: Gardariki, 2006. - 639 p.
9. Nikiforov, A. L. Philosophy of science: history and methodology [Text]: Textbook.manual / A. L. Nikiforov. - Moscow: house of intellectual books, 1998. - 276 p.
10. Ogorodnikov V. P. History and philosophy of science: textbook for postgraduates. Saint Petersburg: Piter, 2012. - 362 p.
11. Voitov A. G. History and philosophy of science [Text] / A. G. Voitov. M.: Dashkov, 2006. - 691 p.
12. Rubochkin, V. A. History and philosophy of science [Text] / V. A. Rubochkin, S. Lebedev. Moscow: MSU, 2010. 200 p.

### **Lesson 3. the Emergence of science (2 hours)**

1. pre-Science (protoscience) and science.
2. Culture of the ancient Polis and the formation of the first forms of theoretical science.
3. Development of logical norms of scientific thinking and organizations of science in medieval universities. The role of Christian theology in the Genesis of science. Western and Eastern medieval science.

#### Basic and additional educational literature

##### a) main literature:

1. Stepin, V. S. History and philosophy of science [Text] / V. S. Stepin. Moscow: Academic project, 2012. 422 p.
2. Guseva, E. A. Philosophy and history of science [Text] / E. A. Guseva. - Moscow: INFRA-M, 2013. - 126 p.
3. Mineev, V. V. Introduction to the history and philosophy of science [Text] / V. V. Mineev. - 4th ed., transl. and add. - M., Berlin: Direct-Media, 2014. - 639 p.
4. Ostrovsky, E. V. History and philosophy of science [Text] / E. V. Ostrovsky, M.: UNITY, 2012. - 159 p.
5. Buchilo N. F. History and philosophy of science [Text] / N. F. Buchilo. M.: Prospect, 2014. - 427 p.

##### b) additional literature:

6. Virginsky V. S., Khoteenkov V. F. Essays on the history of science and technology (from ancient times to the middle of the XV century). Moscow, 1993.
7. Kirillin V. A. Pages of the history of science and technology. Moscow, 1994.
8. Polikarpov, V. S. History of science and technology. Study guide. Rostov-on-don, 1999.
9. Fortunatov V. V. History of world civilizations. Saint Petersburg: Piter, 2011.
10. Khachaturian V. M. History of world civilizations from ancient times to the end of the XX century. Moscow: bustard, 2000.
11. Zelenov, L. A. History and philosophy of science [Text]: textbook. Handbook / L. A. Zelenov, A. A. Vladimirov, V. A. Shchurov. - Moscow: flint: Nauka, 2008. - 472 p.
12. Bariev, R. H. History and philosophy of science: (General problems of philosophy of science): the tutorial (short course) / R. H. Bariev, G. M. Levin, V. Manko ; under the editorship of Y. V. Manko. - Saint Petersburg: publishing house "Petropolis", 2009. - 112 p. - Bibliogr. in the book-ISBN 978-5-9676-0217-7; The same [Electronic resource]. - URL: <http://biblioclub.ru/index.php?page=book&id=255794> (25.02.2015).

#### **Lesson 4. Formation of a New science (2 hours)**

1. The emergence of experimental science modern European culture.
2. Formation of ideals of mathematized and experienced knowledge: Oxford school, R. Bacon, W. Occam.
3. Prerequisites for the emergence of the experimental method and its connection with the mathematical description of nature: G. Galilei, F. Bacon, R. Descartes.
4. the Ideological role of science in the new European culture.
5. socio-Cultural prerequisites for the emergence of the experimental method and its connection with the mathematical description of nature.
6. Formation of science as a professional activity. The emergence of the disciplinary organized science.

##### Basic and additional educational literature

###### a) main literature:

1. Stepin, V. S. History and philosophy of science [Text] / V. S. Stepin.

Moscow: Academic project, 2012. 422 p.

2. Guseva, E. A. Philosophy and history of science [Text] / E. A. Guseva. - Moscow: INFRA-M, 2013. - 126 p.

3. Mineev, V. V. Introduction to the history and philosophy of science [Text] / V. V. Mineev. - 4th ed., transl. and add. - M., Berlin: Direct-Media, 2014. - 639 p.

4. Ostrovsky, E. V. History and philosophy of science [Text] / E. V. Ostrovsky, M.: UNITY, 2012. - 159 p.

5. Buchilo N. F. History and philosophy of science [Text] / N. F. Buchilo. M.: Prospect, 2014. - 427 p.

###### b) additional literature:

6. Virginsky V. S. Essays on the history of science and technology of the XVI-XIX centuries, Moscow, 1984.

7. Zelenov, L. A. History and philosophy of science [Text]: textbook. Handbook / L. A. Zelenov, A. A. Vladimirov, V. A. Shchurov. - Moscow: flint: Nauka, 2008. - 472 p.

8. Ogorodnikov V. P. History and philosophy of science: textbook for postgraduates. Saint Petersburg: Piter, 2012. - 362 p.

9. Voitov A. G. History and philosophy of science [Text] / A. G. Voitov. M.: Dashkov, 2006. - 691 p.

10. Rubochkin, V. A. History and philosophy of science [Text] / V. A. Rubochkin, S. Lebedev. Moscow: MSU, 2010. 200 p.

## **Lesson 5. Features of the development of philosophy and science in the 20th-21st centuries (2 hours)**

1. The main characteristics of modern post-nonclassical science.
2. Modern processes of differentiation and integration of Sciences.
3. Global evolutionism as a synthesis of evolutionary and systemic approaches.
4. Convergence of the ideals of natural science and social and humanitarian knowledge.
5. TRANS-Scientific paradigm of development and content of modern scientific knowledge.
6. post-non-Classical science and changes in the worldview of technogenic civilization.
7. Search for a new type of civilizational development and new functions of science in culture. The role of science in overcoming modern global crises.

### Basic and additional educational literature

#### a) main literature:

1. Stepin, V. S. History and philosophy of science [Text] / V. S. Stepin. Moscow: Academic project, 2012. 422 p.
2. Guseva, E. A. Philosophy and history of science [Text] / E. A. Guseva. - Moscow: INFRA-M, 2013. - 126 p.
3. Mineev, V. V. Introduction to the history and philosophy of science [Text] / V. V. Mineev. - 4th ed., transl. and add. - M., Berlin: Direct-Media, 2014. - 639 p.
4. Ostrovsky, E. V. History and philosophy of science [Text] / E. V. Ostrovsky, M.: UNITY, 2012. - 159 p.
5. Buchilo N. F. History and philosophy of science [Text] / N. F. Buchilo. M.: Prospect, 2014. - 427 p.

#### b) additional literature:

6. Arshinov V. I. Synergetics as a phenomenon of post-non-classical science [Text] V. I. Arshinov, Moscow: if RAS, 1999.
7. Svirsky, Ya. I. Philosophical and methodological problems of modern post-non-classical science / ya. I. Svirsky // Bulletin of the Russian humanitarian science Foundation. - 2007. - No 4 (49). - Pp. 106-112.
8. Modern philosophical problems of natural, technical and social and humanitarian Sciences: textbook / [V. V. Mironov et al.]; ed. V. V. Mironov. - M.: Gardariki, 2006. - 639 p.
9. Actual problems of philosophy of science [Text] / [ed. by E. V. Girusov]. - Moscow: Progress-Tradition, 2007. - 344 p.
10. The future of fundamental science. Conceptual, philosophical and social aspects of the problem [Text] / ed. A. A. Krushanov. - M.: URSS, 2011. - 286 p.



## **Lesson 6. Basic concepts of modern philosophy of science (2 hours)**

1. Logical-epistemological approach to the study of science.
2. the Positivist tradition in the philosophy of science. Extension

fields of philosophical problems in the post-positivist philosophy of science.

3. K Concepts Popper, I. Lakatos, T. Kuhn, P. Feyerabend, M. Polani.
4. Sociological and cultural approaches to research in the development of science.
5. The problem of internalism and externalism in understanding the mechanisms of scientific activity.
6. Concepts Of M. Weber, A. Coire, R. Merton, M. Malkay.

Basic and additional educational literature

a) main literature:

1. Stepin, V. S. History and philosophy of science [Text] / V. S. Stepin. Moscow: Academic project, 2012. 422 p.
  2. Guseva, E. A. Philosophy and history of science [Text] / E. A. Guseva. - Moscow: INFRA-M, 2013. - 126 p.
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  5. Buchilo N. F. History and philosophy of science [Text] / N. F. Buchilo. M.: Prospect, 2014. - 427 p.
- b) additional literature:
6. Kuhn, Thomas. Structure of scientific revolutions [Text] / T. Kuhn. - M.: AST, 2003. - 606 p.
  7. Mumford, Lewis. Myth of the machine. Technology and human development [Text]: TRANS. with English / L. Mumford. - M.: Logos, 2001. - 405 c II.
  8. Popper, Karl Raimund. Logic of scientific research [Text]: TRANS. with English / K. R. Popper. - Moscow: Republic, 2005. - 447 p.
  9. Popper, Karl Raimund. Objective knowledge. Evolutionary approach [Text]: TRANS. from English / K. R. Popper. - Moscow: URSS, 2002. - 381 p.
  10. Zelenov, L. A. History and philosophy of science [Text]: textbook. Handbook / L. A. Zelenov, A. A. Vladimirov, V. A. Shchurov. - Moscow: flint: Nauka, 2008. - 472 p.
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12. Voitov A. G. History and philosophy of science [Text] / A. G. Voitov. M.: Dashkov, 2006. - 691 p.

13. Rubochkin, V. A. History and philosophy of science [Text] / V. A. Rubochkin, S. Lebedev. Moscow: MSU, 2010. 200 p.

## **Lesson 7. Scientific rationality (2 hours)**

1. Scientific rationality: concept and content. Types of scientific rationality.
2. Classical and non-classical scientific rationality. Criteria of classical scientific rationality.
3. Formation of the paradigm of classical scientific rationality. Criteria for non-classical scientific rationality.
4. the Problem of post-non-classical scientific rationality.

### Basic and additional educational literature

#### a) main literature:

1. Stepin, V. S. History and philosophy of science [Text] / V. S. Stepin. Moscow: Academic project, 2012. 422 p.
2. Guseva, E. A. Philosophy and history of science [Text] / E. A. Guseva. - Moscow: INFRA-M, 2013. - 126 p.
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5. Buchilo N. F. History and philosophy of science [Text] / N. F. Buchilo. M.: Prospect, 2014. - 427 p.

#### b) additional literature:

6. kohanovsky, V. p. Philosophy and methodology of science [Text]: Textbook for universities / V. P. kohanovsky. - Moscow; Rostov on don: AST: Fenix, 1999. - 574 p.
7. Stepin, V. S. Theoretical knowledge [Text] / V. S. Stepin. - M.: Progress-Tradition, 2000. - 744 p.
8. Epistemology: perspectives of development [Text] / RAS, Institute of philosophy; [ed. V. A. Lektorsky]. - M.: Canon+, 2012. - 535 p.
9. Bobrova, L. A. Science as knowledge and as value: (SVOD. Ref.) / L.

Beaver // Social and human Sciences: ed. I zarubezh. lit. Ser. 3, Filosofiya: RZh / RAS INION. - 2007. - No 1. - P. 24-27.

10. Svirsky, Ya. I. Philosophical and methodological problems of modern post-non-classical science / ya. I. Svirsky // Bulletin of the Russian humanitarian science Foundation. - 2007. - No 4 (49). - Pp. 106-112.

## **Lesson 8. Specifics and structure of scientific knowledge (2 hours)**

1. Scientific knowledge as a complex developing system.
2. Variety of types of scientific knowledge.
3. Empirical and theoretical levels, criteria for distinguishing them. Features of the empirical and theoretical language of science. The structure of empirical knowledge. Experiment and observation. Observation data as a type of empirical knowledge. Empirical dependencies and empirical facts. The problem of theoretical loading of the fact.
4. Structure of theoretical knowledge. Theoretical models and laws. The developed theory. Models as an element of the internal organization of the theory. Limitations of the hypothetical-deductive concept of theoretical knowledge.
5. Deployment of the theory as a problem-solving process. Paradigm models of problem solving as part of the theory.

### Basic and additional educational literature

#### a) main literature:

1. Stepin, V. S. History and philosophy of science [Text] / V. S. Stepin. Moscow: Academic project, 2012. 422 p.
2. Guseva, E. A. Philosophy and history of science [Text] / E. A. Guseva. - Moscow: INFRA-M, 2013. - 126 p.
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10. Svirsky, Ya. I. Philosophical and methodological problems of modern post-non-classical science / ya. I. Svirsky // Bulletin of the Russian humanitarian science Foundation. - 2007. - No 4 (49). - Pp. 106-112.

## Lesson 9. Dynamics of scientific knowledge (2 hours)

1. Dialectics of developing science. Cumulative and anti-cumulative theories of scientific progress.

2. Problems of rational reconstruction of the dynamics of scientific knowledge and the systemic nature of scientific progress.

3. development of science as a unity of processes of differentiation and integration of scientific knowledge. Extensive and intensive stages in the development of a scientific discipline.

4. The nature of scientific revolution. Types of scientific revolutions.

5. Modern strategies for the development of scientific knowledge. Stages of science formation: classical, non-classical, post-non-classical.

6. Inclusion of science in the socio-cultural context (TRANS-science).

Basic and additional educational literature

a) main literature:

1. Stepin, V. S. History and philosophy of science [Text] / V. S. Stepin.

Moscow: Academic project, 2012. 422 p.

2. Guseva, E. A. Philosophy and history of science [Text] / E. A. Guseva. - Moscow: INFRA-M, 2013. - 126 p.

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5. Buchilo N. F. History and philosophy of science [Text] / N. F. Buchilo. M.: Prospect, 2014. - 427 p.

b) additional literature:

6. Kuhn, Thomas. Structure of scientific revolutions [Text] / T. Kuhn. - M.: AST, 2003. - 606 p.

7. kohanovsky, V. p. Philosophy and methodology of science [Text]: Textbook for universities / V. P. kohanovsky. - Moscow; Rostov on don: AST: Fenix, 1999. - 574 p.

8. Stepin, V. S. Theoretical knowledge [Text] / V. S. Stepin. - M.: Progress-Tradition, 2000. - 744 p.

9. Epistemology: perspectives of development [Text] / RAS, Institute of philosophy; [ed. V. A. Lektorsky]. - M.: Canon+, 2012. - 535 p.

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11. Svirsky, Ya. I. Philosophical and methodological problems of modern post-non-classical science / ya. I. Svirsky // Bulletin of the Russian humanitarian science Foundation. - 2007. - No 4 (49). - Pp. 106-112.

12. the Future of fundamental science. Conceptual, philosophical and social aspects of the problem [Text] / ed. A. A. Krushanov. - M.: URSS, 2011.-

## List of Internet information and telecommunications network resources

1. <http://school-collection.edu.ru/> - Federal repository unified collection of digital educational resources
2. <http://www.edu.ru/> - the Federal portal of Russian education
3. <http://www.igumo.ru/> - Internet portal Of the Institute of Humanities education and information technology
4. [www.edu.ru](http://www.edu.ru/) -website of the Ministry of education of the Russian Federation
5. <http://elibrary.ru/defaultx.asp> - scientific electronic library "Elibrary"
6. <http://www.eduhmao.ru/info/1/4382/> - information and educational portal "Electronic journals»
7. [www.gumer.info](http://www.gumer.info) -Gumer library
8. [www.koob.ru](http://www.koob.ru) - electronic library.
9. [www.diss.rsl.ru](http://www.diss.rsl.ru) – the electronic library of dissertations
10. <http://fictionbook.ru> – e-library;
11. <http://hum.offlink.ru> - "the RUSSIAN HUMANIST SOCIETY"
12. <http://institut.smysl.ru> -Institute of existential psychology and life creation;
13. <http://svitk.ru> -electronic library
14. <http://anthropology.ru> -electronic journal " Philosophical anthropology»
15. <http://i-text.narod.ru> -library of the philosophy of psychoanalysis
16. <http://www.iqlib.ru> -electronic library of educational and educational institutions publications
17. <http://www.integro.ru> -center for System Research "Integro»
18. <http://biblioteka.org.ua> – e-library
19. <http://www.lib.msu.su/index.html> - Scientific library of Moscow state University named after M. V. Lomonosov
20. <http://www.rsl.ru/> - Russian State Library
21. <http://www.filosof.historic.ru/> - Digital library for philosophy

## Самостоятельная работа аспирантов

№	Name of the discipline section	Due date
1	2	3
1	The relationship between philosophy and science. Main problems of modern philosophy Preparing an essay and presenting it in a practical class	2 - 3 week
2	Basic concepts of modern philosophy of science Preparation of a report with a presentation and performance with him in a practical class	9 - 10 week
3	Scientific rationality Preparation of a report with a presentation and presentation at the round table	12 - 13 week
4	Creating an individual dictionary scientific terms	15 - 16 week
5	Writing a scientific article to candidate's exam.	
6	Writing an abstract for the candidate's thesis exam.	17 - 18 week

Guidelines  
on conducting independent work

Report with presentation

One of the types of independent work is the preparation of creative work on a given topic or agreed with the teacher. Creative work (report with presentation) is an original work of up to 10 pages of printed text (10-15 slides), dedicated to the philosophical problems of any natural science, information or technical discipline.

Report preparation

A report is a message whose content provides information and reflects the

essence of a question or study in relation to a given situation. The purpose of the report is to inform someone about something. However, reports may include elements such as recommendations, suggestions, or other motivational suggestions.

#### Stages of preparation for the report

- choose a topic under the teacher's supervision;
- \* read the guidelines on this issue;
- \* study the topic in the basic textbook and teaching aid;
- \* identify the main ideas of the future speech;
- read the recommended literature on this topic;
- \* plan a report or message;
- \* identify key terms of the topic and define them using dictionaries, reference books, and encyclopedias;
- \* create abstracts;
- \* choose examples and illustrative material; on many topics, the report is appropriate to accompany the presentation of Power Point presentations;
- \* prepare the text of the report (communication);
- \* consult your teacher if necessary;
- \* rehearse a performance (for example, in front of a bandmate).

The recommended length of the report is 10 minutes. After the speaker's speech, time is provided for his answers to questions from the audience and for the teacher's resume.

#### Structure of public speech

In classical rhetoric, there is a three-part structure of a detailed oral presentation: the introduction, the main part, and the conclusion.

The introduction is a way to attract the audience's attention to the topic under discussion and include them in the problems of the speech. It usually makes up one-eighth of the entire time of the report. Any speech begins with the wording of the topic. There are no uniform rules for writing an introduction. It often shows the significance of the chosen topic in public life, its

place in social studies. It is noted the relevance, personal motives for choosing this topic, the degree of its development in the works of specialists.

The main part of the speech is devoted to the disclosure of the topic and contains a statement of information and evidence. The ideas expressed must meet logical requirements, be related to each other, and flow from one another.

The most common mistakes made in the main part of the report: going beyond the topic under consideration; lack of a clear plan of presentation of the material; excessive splitting of the issues under consideration (the report should not contain more than five main points, otherwise the attention of listeners is scattered); jumping from one question to another.

The conclusion should be brief and clear. It does not contain new, additional information or thoughts. The conclusion is intended to remind listeners of the main content of the speech, its main conclusions (not everything is well remembered by ear from the first time). In conclusion, you can thank the audience for their attention.

Keeping the audience's attention depends on the speaker's dynamic movements, facial expressions, gestures, raising and lowering the voice, diction, voice timbre, and use of pauses. Expressive gestures enliven speech, and frequent and monotonous gestures irritate listeners. Compelling examples, comparisons, illustrations, metaphors, and quotes hold the audience's attention. They arouse the interest of listeners, help to establish contact with them, find out their position.

### **Principles of successful performance**

1. you Need to start preparing for a speech a few days in advance, not the day before. This allows you to properly study the topic, understand it, feel confident in it, and not feverishly memorize the text at the last moment.

2. It is necessary to rehearse at least once, but preferably twice or thrice.

3. before the rehearsal, draw up a speech plan on a piece of paper, thinking about the main elements of its structure in advance. For a short speech, this is a list of the main thoughts in the desired form sequence; for more detailed – a detailed plan that reflects the completed form of the future speech.

4. For the big speech prepared notes, sheets of paper, which is comfortable to hold in hand. They contain the necessary factual and reference material: figures, quotes, examples, and evidence.

5. Rehearse the speech as a whole, not in fragments. It is better to change the sequence of the presentation, add or shorten the content, if necessary, at the next rehearsal. This allows you to reproduce the situation of a real speech.

6. When rehearsing, do not have to memorize separate phrases or figures of speech. The goal is to remember ideas, not their language form. When speaking, you should talk to the audience, not recite the text by heart.

7. at each rehearsal, the speech turns out to be a little new, usually improved. When rehearsing, they turn to the written plan only if they forget the train of thought.

8. When making a trial speech, if possible, imagine the circumstances of the future performance-the room, the audience.

9. it is convenient to leave wide fields On the plan sheet - you can write reference (key) words on them, which make it easy to restore the entire corresponding section to memory. On the main part of the sheet, you can write a summary of the speech.

### **Criteria for evaluating the report**

1. Practical significance of the work.

2. The use of the presentation.

3. Originality of the work.

4. Compliance of the results with modern trends in the development of science.

5. Depth of study of the problem state.

6. Use of modern scientific literature in the preparation of the work.

7. Answers to questions from listeners.

8. Logic of presentation of the report, persuasiveness of reasoning.

9. structure of the work (there are: introduction, purpose of the work, problem statement, solution of tasks, conclusions).



## **Individual dictionary of scientific terms**

Drawing up an individual dictionary of scientific terms is a task for independent work that contributes to the systematization of the obtained knowledge at the theoretical level. The most accepted definition of a scientific concept is entered in the dictionary. you do not need to accompany the definition with a detailed synopsis. The term should be highlighted in bold, followed by the definition itself in plain text.

It is preferable to fill in the dictionary of terms manually in the General notebook.

## **Report**

Guidelines for writing an abstract

1. the Abstract is a written work that is performed by a master in the discipline "History and philosophy of science".

2. the Abstract should be an independent work that shows the author's ability to systematize theoretical material on the topic, present it coherently, creatively use philosophical ideas and positions for methodological analysis of the materials of the science in which the master specializes. Direct borrowing without specifying the sources of the texts used is not allowed. Scientific ideas retold in their own words, the thoughts of other authors, and quotations should have references to the source. It is necessary to give in square brackets the end-to-end numbering of the cited literature: the first digit is the serial number from the list of references, and the second digit

— page. For example: [2, p. 56].

3. The topic of the abstract is chosen by the graduate student. When choosing it, you should use the advice of teachers of the Department of philosophy and sociology and the scientific supervisor. The abstract should cover the most important theoretical problems related to the master's scientific specialty. The topic and content of the abstract should be agreed with the supervisor.

4. the Abstract must have the content, introduction, summary of the topic, conclusion, list of references, as well as an Appendix (if necessary).

5. the Content contains all the structural elements listed in clause 4 of the abstract, indicating the pages on which they are located. The content headers are duplicated in the abstract text.

6. Introduction — the most important semantic element of the abstract. Its form is arbitrary, but it should reflect the following questions: justification of the choice of the topic, its assessment in terms of relevance, novelty and practical significance, an indication of the relationship of the chosen topic with the author's scientific specialty.

7. The main content of the work must be an independently executed research on the problem stated in the title of the essay, or synthesis of the existing literature, or methodological development of problems in the sphere of scientific interests of the author of the abstract.

8. the conclusion provides a brief summary of the main part of the abstract, or the conclusions drawn from this presentation, or the practical application of the

material contained in the abstract.

9. The list of references contains a reference to the studied work by the author. It should include fundamental works on the topic and recent publications on it.

10. Abstract in the amount of 25-30 pages should be bound and have a title page which must contain: name of University, name of Department (Department of philosophy and sociology), the topic of the essay, the academic discipline for which protected abstract( for Example: "History and methodology of science and technology in the field of nanotechnology"), the surname and initials of the master, the place and year of writing the abstract.

11. when preparing an abstract on a computer, use the font – 14, Times New Roman (1.5 intervals); page parameters (fields) for A4 paper: upper field — 2 cm, bottom-2 cm, left-3 cm, right-1.5 cm.

### **Scientific article**

The purpose of this publication is to make the common heritage of a particular idea. The article is an original work with a volume of up to 0.5 a. l., dedicated to current problems of any natural science, information,

a humanitarian, social, or technical discipline. This creative work is not an abstract, and should not be descriptive. It is desirable to focus on the critical analysis of the material under consideration and the presentation of their point of view on the problem, which will contribute to the development of creative abilities.

A scientific article should be an independent work that shows the author's ability to systematize theoretical material on the topic, present it coherently, and creatively use philosophical ideas and positions for methodological analysis of the materials of the science in which the graduate student specializes. Direct borrowing without specifying the sources of the texts used is not allowed. Scientific ideas retold in their own words, thoughts of other authors and quotations must have references to the source and are designed according to the requirements of the journal.

Criteria for writing a scientific article by content:

Scientific (refers to the research and development of something new, the use of scientific methods of knowledge, so it is often determined by the key links in the text, the research methods implemented and conclusions).

Novelty and originality (a new idea, technology, method, technique or original version of the extension, testing, proof of the effectiveness of someone's author's idea, method, technology is proposed, so it is often determined by comparison with existing developments).

Relevance is the ability of its results to be applicable to solving sufficiently significant scientific and practical problems.

Practicality (related to the transfer of other professionals to practical activities, so it is often determined by the presence in the article of ways to transfer experience).

Methodicality (related to optimizing the structure of the innovation, the sequence and conditions for its implementation; most often it is determined by the

number and usefulness of recommendations in the article).

Credibility (determined by the reliability of quotations, reasoned conclusions, the availability of statistical results and the logic of their interpretation).

Criteria for writing a scientific article in the form of presentation: Logic (determined by the evidence of causality- investigative links, the logic of transitions, the interconnectedness of parts).

Clarity (often determined by the clarity of the terms used and the presence of illustrative examples).

Originality (determined by the presence of successful analogies, quotes, aphorisms, drawings).

Completeness (determined by the presence of the main structural parts, the presence of minimal content and completeness of the text).

### **The recommended structure of the article**

1. Abstract, key words
2. Introduction (introduction)
3. Main part(research methodology, results obtained and their explanation),
4. Conclusions (conclusion)
5. List of references (literature).

### **The main logical requirements for the result of a scientific article:**

1. Clear logical structure of the layout of individual sections of the article.
2. Refer to previously published materials on this topic.
3. Development of a scientific hypothesis..
4. providing feedback between sections of the article.

### **Main methodological requirements for the result of a scientific article:**

1. The result should be a particular affirmative judgment.
2. The truth of the result must be justified.
3. the work should show the novelty and relevance of the research result.
4. the Development of scientific articles requires compliance with certain rules of presentation. The entire presentation must follow a strict logical plan and disclose the main purpose of the article.
5. design of the article in accordance with the requirements of a particular journal.
6. before sending an article to the journal, it is recommended to check the article yourself for the presence of borrowings.

### **For the candidate's exam:**

The post-graduate student formulates the topic of his article in accordance with the main topic of the dissertation, considering the historical, methodological, and philosophical aspects of the main scientific problem of his work.

The scientific article must be published in a printed or electronic publication (RSCI) for the candidate's examination. Independent work is considered completed after publication.

A scanned copy of the article in the journal is submitted to the Department of postgraduate studies no later than 2 weeks before the exam date.

### Essay

An essay is a genre of philosophical, literary-critical, historical, and journalistic prose that combines the author's strongly individual position with a relaxed, often paradoxical presentation focused on colloquial speech. Essential features of the essay are the presence of a specific topic or question, the personal nature of the perception of the problem and its understanding, a relatively small volume, free composition, ease of narration and paradoxical, the desire to surprise the reader with something. At the same time, the essay requires internal semantic unity.

### **Algorithm for writing an essay**

1. Carefully read the subject of the essay. In order to remove doubts about whether he understands the topic correctly, the graduate student must reformulate the phrase in his own words, defining the main idea.

2. it is mandatory for the graduate student to Express their personal attitude to the chosen topic in a clearly expressed wording ("I agree", "I do not agree", "I do not quite agree", "I agree, but partially" or similar phrases in meaning and meaning).

3. Mandatory graduate student must present his understanding of the meaning of the utterance.

4. very carefully you must approach the selection of arguments to confirm your point of view. Arguments must be convincing and well-founded. The arguments are based on data from the relevant Sciences, historical facts, and facts from public and personal life. The number of arguments in the essay is not limited, but the most optimal for the disclosure of the topic are 3-5 arguments.

5. the essay should be Concluded with a conclusion that briefly summarizes the thoughts and reasoning: "Thus, based on all of the above, it can be argued that the author was right in his statement."

### **Essay evaluation criteria**

- representation of your own point of view (position, attitude) when solving the problem

- disclosure of the problem at the theoretical (in connection with the justifications) or everyday level, with or without the correct use of social science concepts in the context of the answer;

- argumentation of your position based on the facts of public life or your own experience.

### **Educational and methodological support for independent work**

Postgraduates can use educational and visual AIDS, educational equipment and methodological developments of the Department during working hours established by the internal regulations of employees when independently studying

certain topics and issues of disciplines.

Educational and methodological support for independent work of students in this discipline is organized by:

University library:

- the library Fund is equipped with educational, methodological, scientific, periodical, reference and fiction literature in accordance with the up and this RPA;
- there is access to basic educational information resources, an information database, including a bibliographic database, and the ability to access the Internet.

**Department:**

- by ensuring the availability of all necessary teaching and reference materials;
- by providing information about the availability of educational and methodological literature, modern software tools.
- by developing:
  - methodological recommendations, manuals on the organization of independent work of postgraduates;
  - tasks for independent work;
  - topics of abstracts and reports;
  - topics of term papers and projects and guidelines for their implementation;
  - questions for exams and tests;
  - guidelines for performing laboratory and practical work, etc.

**University printing office:**

- assistance to authors in the preparation and publication of scientific, educational and methodological literature;
- meeting the need for replication of scientific, educational and methodological literature.

Standard control tasks or other materials necessary for the assessment of knowledge, skills and (or) experience of activities that characterize the stages of competence formation in the process of mastering the educational program

## **1. Business game "Mini-conference" Philosophy of science its subject and functions""**

**Topics of reports:**

1. Philosophy as science, as not science and philosophy of science.
2. Subject of philosophy of science.
3. Problems of the philosophy of science.

## **2. Interview**

**Questions:**

1. Philosophy of science as a special type of interdisciplinary knowledge.
2. Evolution of philosophical approaches to the analysis of science.
3. Foundations of science. The structure of the bases.
4. The ideals and norms of research and its socio-cultural dimension. The system of ideals and norms as a scheme of the method of activity.
5. The role of philosophical ideas and principles in the justification of scientific knowledge.

6. Philosophical ideas as a heuristic of scientific search.
7. Philosophical justification as a condition for the inclusion of scientific knowledge in culture.

**3. Lecture with elements of problem presentation on the question:** Unity and difference of philosophical and concrete-scientific ways of knowledge, private-scientific and philosophical theories.

**4. Essay.**

Topic: the Relationship between philosophy and science.

**5. The message of a graduate student.**

Topic: is the date of the origin of science Known?

**6. Colloquium**

Questions:

1. The emergence of experimental science modern European culture.
2. Formation of ideals of mathematized and experienced knowledge: Oxford school, R. Bacon, W. Occam.
3. Prerequisites for the emergence of the experimental method and its connection with the mathematical description of nature: G. Galilei, F. Bacon, R. Descartes.
4. the Ideological role of science in the new European culture.
5. socio-Cultural prerequisites for the emergence of the experimental method and its connection with the mathematical description of nature.
6. Formation of science as a professional activity. The emergence of the disciplinary organized science.

7. The message of a graduate student.

Topic: Post-non-classical science and changes in the worldview of technogenic civilization.

8. The message of a graduate student.

Topic: Expanding the field of philosophical problems in the post-positivist philosophy of science.

9. Round table "Scientific rationality". The problem topics of the reports are formulated by postgraduates themselves.

Questions:

1. Scientific rationality: concept and content.
2. Types of scientific rationality.
3. Criteria of classical scientific rationality.
4. Formation of a paradigm of non-classical scientific rationality.
5. the Problem of post-non-classical scientific rationality.

## 10. Survey.

1. Scientific knowledge as a complex developing system.
2. Variety of types of scientific knowledge.
3. Empirical and theoretical levels, criteria for distinguishing them. Features of the empirical and theoretical language of science.
4. The structure of empirical knowledge. Experiment and observation. Observation data as a type of empirical knowledge. Empirical dependencies and empirical facts.
5. Structure of theoretical knowledge. Theoretical models and laws. The developed theory. Models as an element of the internal organization of the theory. Limitations of the hypothetical-deductive concept of theoretical knowledge.
6. Deployment of the theory as a problem-solving process. Paradigm models of problem solving as part of the theory

## 11. Test.

### Task №1

ENTER THE CORRECT ANSWER!

The classic type of scientific rationality has been formed...

- A) in the age of antiquity; B) in Modern times;  
C) in the Renaissance; D) in the age of Enlightenment; E) in The postmodern era.

### Task № 2

ENTER THE CORRECT ANSWER!

The mechanistic approach in science has been formed.

- A) IV-V centuries BC; B) IV-V centuries;  
C) of the XVI century ;  
D) XVII-XVIII centuries  
E) XX century;

### Task № 3

ENTER SEVERAL CORRECT ANSWERS!

The philosophy of modern times laid down the following principles of scientific knowledge:

- A) rationalism;  
B) the principle of logical argumentation;  
C) the principle of empirical verification; D) the system principle of research of objects of nature; E) telonomics;  
(E) the principle of object typing and classification.

### The task № 4

FILL OUT THE DIAGRAM!

(ARRANGE THE NECESSARY ANSWERS IN A LOGICAL SEQUENCE)

Structure of levels of scientific knowledge:

empirical; applied;  
conceptual; theoretical;  
experimental; practical;

### Task № 5

ENTER THE CORRECT ANSWER!

The use of such concepts as bifurcation, fluctuation, chaos, strange attractors, the nonlinearity characteristic ...



- A) classical science;
- B) mechanical science. C) non-classical science;
- G) postneoclassical of science; D) synergistic science;

### **Task № 6**

ENTER SEVERAL CORRECT ANSWERS!

Representatives of classical science are ...

- A) I. Newton;
- B) J. Verne;
- C) R. Descartes;
- D) I. Prigozhin;
- E) G. Galilei;
- E) A. Einstein; G) M. Faraday; H) N. Moiseev.

### **Task № 7**

ENTER THE CORRECT ANSWER!

A well-founded, conceptually organized system of scientific representations is called

- A) method;
- B) theory;
- C) hypothesis;
- D) science;
- E) methodology;

### **The task № 8**

ENTER SEVERAL CORRECT ANSWERS!

Representatives of ancient science are ...

- A) Democritus;
- B) Archimedes;
- C) Descartes;
- D) Spinoza;
- E) Galileo;
- (E) Hippocrates;
- G) Homer;
- H) Kapitsa.

### **The task № 9**

ENTER THE CORRECT ANSWER!

A well-founded, conceptually organized system of scientific representations is

called

- A) method;
- B) theory;
- C) hypothesis;
- D) science;
- E) methodology.

### **Task № 10**

ENTER THE CORRECT ANSWER!

Which of the following functions does not belong to the functions of the theory?

- A) descriptive; B) explanatory;
- C) predictive; D) ideological.

### **Task № 11**

ENTER THE CORRECT ANSWER!

The process of turning a hypothesis into a theory is carried out according to the scheme:

- A) formulation → deduction of consequences → comparison with experience → verification → transformation into theory;
- B) primary collection → formulation → deduction of consequences → comparison with experience → verification → transformation into theory;
- C) primary collection → formulation → deduction of consequences → comparison with experience → falsification → transformation into theory;
- D) primary collection → formulation → derivation of consequences → comparison with theories → verification → transformation into a theory.

### **Task № 12**

ENTER THE CORRECT ANSWER!

The synergetic approach in science has been formed.

- A) IV-V centuries BC; B) IV-V centuries;
- C) XVII -XVIII centuries D) XIX XX Century;
- D) the XX century.

### **The task № 13**

ENTER THE CORRECT ANSWER!

The system approach in science has been formed...

- A) IV-V centuries BC; B) IV-V centuries;
- C) XVII -XVIII centuries D) XIX XX Century;
- D) the XX century.

