MINISTRY OF HEALTH OF UKRAINE
BUKOVINIAN STATE MEDICAL UNIVERSITY

AGREED»
Vice-Rector of the Higher Education Institution for Academic and Pedagogical Work and International Relations

_____ **Oksana HODOVANETS**
«28» ____08_____ 2025 p.

GUIDE FOR PhD STUDENTS (SYLLABUS)

for studying the academic discipline

History and Philosophy of Science. The Concept of Open Science

Field of Knowledge _____ 22 Health care _____

Specialty _____ 221 – Dentistry _____

Degree _____ Doctor of Philosophy (PhD) _____

Year of Study _____ I _____

Form of Study _____ Full-time (day, evening) / Part-time _____

Department _____ Social Sciences and Ukrainian Studies _____

Approved at the methodological meeting of the Department of Social Sciences and Ukrainian Studies "25" August 2025 (protocol No. 1).

Head of the Department _____ **Antoniy MOISEY**

Approved by the subject (cyclic) commission on social and humanitarian disciplines on 26 August, 2025 (protocol No. 1).

Head of subject (cyclic) commissions _____ **Nina ZORIY**
(signature)

Chernivtsi – 2025

1. GENERAL INFORMATION ABOUT ACADEMIC AND TEACHING STAFF DELIVERING THE COURSE

Department	Department of Social Sciences and Ukrainian Studies
Surname, First Name, Patronymic, Position, Academic Degree, Academic Title, E-mail	Antoniy Arkadiyovych Moysey – Head of the Department, Doctor of Historical Sciences, Professor antoniimoisei@bsmu.edu.ua
Department webpage on the official university website	https://www.bsmu.edu.ua/suspilnih-nauk-ta-ukrayinoznavstva/
Department website	http://snu.bsmu.edu.ua/
E-mail	society@bsmu.edu.ua
Address	3 Heroiv Maidanu Street, Chernivtsi, Ukraine
Contact phone number	+38 (0372) 52-08-71

2. GENERAL INFORMATION ABOUT THE COURSE

Course status	Elective
Number of ECTS credits	3
Total workload (hours)	90
Lectures	0
Practical classes	40
Independent (self-directed) study	50
Form of final assessment	Pass / Fail (Credit test)

3. COURSE DESCRIPTION (ANNOTATION)

The PhD training programme is developed in accordance with the Law of Ukraine "On Higher Education", *the* Procedure for Training Applicants for the Degree of Doctor of Philosophy and Doctor of Sciences in Higher Education Institutions (Research Institutions), *the* National Open Science Plan *(Resolution of the Cabinet of Ministers of Ukraine No. 892-p of 8 October 2022), and the* Regulations on the Training of Doctors of Philosophy and Doctors of Sciences *of Bukovinian State Medical University*.

The subject matter of the course includes the study of the origin, formation, and evolution of scientific knowledge; analysis of the philosophical foundations of scientific cognition, methods, and criteria of scientific validity; as well as examination of the concept of Open Science as a contemporary model for organizing research activities. The course covers the historical stages of the development of science, changes in scientific paradigms, ethical and social dimensions of scientific research, and the principles of openness, transparency, accessibility of research results, and interaction between science and society.

4. COURSE POLICY

4.1. List of regulatory documents*:*

- Regulations on the Organization of the Educational Process (https://www.bsmu.edu.ua/wp-content/uploads/2020/03/polozhennya-pro-organizacziyu-osvitnogo-proczesu-u-vdnzu-bukovinskij-derzhavnij-medichnij-universitet.pdf);
- Guidelines for Assessing Students' Academic Performance at BSMU under the European Credit Transfer and Accumulation System (ECTS) (https://www.bsmu.edu.ua/wp-content/uploads/2020/03/bdmu-instrukcziya-shhodo-oczinyuvannya-%D1%94kts-2014-3.pdf);
- Regulations on the Procedure for Completing Missed and Uncredited Classes (https://www.bsmu.edu.ua/wp-content/uploads/2019/12/reworks.pdf);

- Regulations on the Appeal Procedure for Final Assessment Results (https://www.bsmu.edu.ua/wp-content/uploads/2020/07/polozhennya-pro-apelyacziyu-rezultativ-pidsumkovogo-kontrolyu-znan.pdf);
- Code of Academic Integrity (https://www.bsmu.edu.ua/wp-content/uploads/2019/12/kodeks_academic_faith.pdf);
- Code of Ethics for Students (https://www.bsmu.edu.ua/wp-content/uploads/2019/12/ethics_code.docx);
- Regulations on the Prevention and Detection of Academic Plagiarism (https://www.bsmu.edu.ua/wp-content/uploads/2019/12/antiplagiat-1.pdf);
- Regulations on the Procedure and Conditions for Students' Choice of Elective Courses (https://www.bsmu.edu.ua/wp-content/uploads/2020/04/nakaz_polozhennyz_vybirkovi_dyscypliny_2020.pdf);
- Internal Labor Regulations of Bukovinian State Medical University (https://www.bsmu.edu.ua/wp-content/uploads/2020/03/17.1-bdmu-kolektivnij-dogovir-dodatok.doc).

4.2. **Policy on Compliance with the Principles of Academic Integrity by Higher Education Applicants*:***

- Independent completion of learning tasks within current and final assessment without the use of unauthorized external information sources;
- Cheating, copying, or any form of academic misconduct during knowledge assessment is prohibited;
- Independent completion of individual assignments and correct referencing of information sources in cases of borrowing ideas, statements, or factual data.

4.3. **Policy on Compliance with the Principles and Norms of Ethics and Deontology by Higher Education Applicants*:***

- Acting in professional and educational situations in accordance with the principles of academic integrity, professional ethics, and deontology;
- Observance of the internal regulations of the University; maintaining tolerance, respectfulness, and goodwill in communication with students, academic staff, and healthcare professionals;
- Awareness of the importance of personal conduct as an example of adherence to the norms of academic integrity and medical ethics.

4.4. **Attendance Policy for Higher Education Applicants*:***

- Attendance at all types of learning activities (practical/seminar classes and final assessment) is mandatory for the purposes of continuous and final assessment of learning outcomes, except in cases of valid and documented reasons.

4.5. **Deadline Policy and Make-up Procedures for Missed or Uncredited Classes*:***

- Completion of missed or uncredited classes is carried out in accordance with the officially approved schedule for make-up classes and consultations.

5. Aim and objectives of the course

5.1. Aim of the course

– The aim of the course is to develop PhD candidates' capacity for philosophical reflection on science as a cultural phenomenon, understanding its historical dynamics, conceptual foundations, and social dimensions, as well as mastering contemporary approaches to Open Science in accordance with international standards.

The course provides acquisition, deepening, and integration of knowledge, skills, abilities, and competencies necessary for generating new ideas, developing an individual research methodology, analysing historical models of scientific development, and mastering ethical, social, and normative principles of scientific activity, including the principles of Open Science in both national and global contexts.

5.2. Course objectives

- form an understanding of science as a historical, cultural, and philosophical phenomenon;
- analyse the historical stages of the development of scientific knowledge and scientific institutions;
- introduce classical, non-classical, and post-non-classical models of science;
- master key approaches to the structure and methods of scientific inquiry;
- comprehend the role of science in social development and its social responsibility;
- develop reflective skills related to one's own research activity;
- develop reflective skills related to one's own research activity;
- analyse international Open Science strategies (UNESCO, the European Union, Ukraine);
- understand the challenges of the digital era for academic integrity and scientific communication;
- become familiar with practices of Open Access, Citizen Science, and interdisciplinary dialogue;
- develop a responsible attitude toward the ethical foundations of contemporary science.

5.3 COMPETENCIES AND LEARNING OUTCOMES FOSTERED BY THE COURSE.

In accordance with the requirements of the Higher Education Standard and the Educational and Research Programme, the course ensures the acquisition of the following competencies by PhD candidates**:**

- **Integral competency:**

- Ability to generate new ideas, solve complex problems in dentistry and related interdisciplinary fields, apply the methodology of scientific and pedagogical activity, and conduct independent research with scientific novelty and theoretical and practical significance.

- **General Competencies*:***

GC 02. Ability to search for, process, and analyse information from various sources.
GC 03. Ability to think abstractly, analyse, and synthesise.
GC 04. Ability to work in an international context.

- **Professional (Special, Subject-Specific) Competencies*:***

PC03. Ability to present and discuss the results of scientific research and innovative projects in dentistry orally and in writing in the state language and in one of the official languages of the European Union, as well as to publish research results in leading international scientific journals.

PC 07. Ability to critically analyse, evaluate, and synthesise new and complex ideas in dentistry and related interdisciplinary fields.

PC 08. Ability for continuous self-development and self-improvement.

A detailed description of competencies according to the descriptors of the National Qualifications Framework (NQF) is provided in the form of a "Competency Matrix".

ESULTS OF STUDYING THE DISCIPLINE..

In accordance with the requirements of the Higher Education Standard and the Educational and Research Programme, the course ensures the achievement of the following learning outcomes (**RSD**):

RSD 03. Ability to confidently present and discuss research results and applied problems in dentistry with specialists and non-specialists in the state and foreign languages, and to disseminate research findings through scientific publications in leading international journals.

RSD 04. Ability to formulate and test hypotheses; use appropriate evidence to substantiate conclusions, including the results of theoretical analysis, experimental research, statistical data analysis, and relevant literature sources.

As a Result of Studying the Course, the PhD Candidate Should:

Know*:*

- The main stages in the development of science, scientific revolutions, and the evolution of scientific paradigms.
- Methodological and philosophical foundations of scientific knowledge and criteria of scientific validity.
- Contemporary concepts of Open Science: open data, open-access publications, and FAIR principles.
- International standards of academic communication and requirements for scientific articles and presentations.
- Principles of evidence-based research and methods of critical analysis of scientific information.
- Ethical principles of scientific research and academic integrity.
- Major global trends in the development of dental science and interdisciplinary research.

Be Able to*:*

- Search for, select, systematise, and critically evaluate scientific sources using international academic databases.
- Formulate research problems, objectives, tasks, and hypotheses using philosophical and methodological approaches.
- Design research projects in accordance with the principles of scientific validity and Open Science.
- Develop logical models, compare theories, and synthesise complex scientific ideas.
- Prepare scientific texts (articles, abstracts, reviews) in the state language and official EU languages in compliance with international standards.
- Present research results orally and in writing at a professional academic level.
- Use international Open Science tools (ORCID, OSF, open data repositories).

Demonstrate the Ability to*:*

- Independently conduct scientific inquiry, critical analysis, and interpretation of research results.
- Substantiate and defend personal scientific conclusions during discussions, seminars, and conferences.
- Adhere to the principles of academic integrity, research ethics, and requirements of Open Science.
- Work in an international academic environment and participate in international research projects.
- Apply reflective practices to assess personal professional development.
- Demonstrate readiness for continuous self-improvement and the development of an individual research trajectory.
- Initiate and implement innovative, interdisciplinary, and open research approaches.

6. COURSE WORKLOAD

The course workload comprises 3 ECTS credits, corresponding to a total of 90 hours, including: Lectures – ____ hours, Practical (seminar) classes – _40_ hours, Independent (self-directed) study –_50 hours.

8. COURSE CONTENT

Content Module 1. History and Philosophy of Science: From Antiquity to the Post-

Nonclassical Era

This module covers the key stages in the formation and development of science within a historical and cultural context—from the earliest forms of systematised knowledge in ancient civilisations to the emergence of classical, nonclassical, and post-nonclassical models of scientific cognition.

Special attention is paid to the history of scientific institutions, the influence of sociocultural and political factors on scientific development, and the specific features of scientific progress in the field of medicine.

Completion of this module contributes to the formation of fundamental philosophical and methodological understandings of science, including its structure, functions, principles, and interaction with society.

Content Module 2. Open Science: Concept, Principles, and Practices

This module focuses on the contemporary stage of scientific development—the transition to an Open Science model—in accordance with UNESCO recommendations and the policy frameworks of the European Union.

PhD candidates explore the core concepts, components, values, and principles of Open Science, types of scientific communication, open access, research infrastructures, and citizen participation in scientific processes.

The module also addresses the advantages and risks of openness in science, challenges related to personal data protection and research ethics, as well as the implementation of Open Science practices in medical research.

8. STRUCTURE OF THE EDUCATIONAL PROGRAMME

Titles of Content Modules and Topics	Number of Hours				
	Total	including:			
		Contact hours		Independent Study	Individual Work
		Lectu-res	Practical classes		
1	2	3	4	5	6
Content Module 1. History and Philosophy of Science: From Antiquity to the Post-Nonclassical Era					
Topic 1. Science as a Historical and Cultural Phenomenon	6		2	4	
Topic 2. Philosophical and Scientific Traditions of Antiquity, the Middle Ages, and the Renaissance	8		4	4	
Topic 3. Classical Science of the Modern Era: 17th–18th Centuries	6		2	4	
Topic 4. Nonclassical and Post-Nonclassical Science (19th–20th Centuries)	6		2	4	
Topic 5. Science and Society: Social, Cultural, and Political Dimensions	6		2	4	
Topic 6. History of Science in the Context of Medical Practice	8		4	4	
Topic 7. Structure and Methods of Scientific Cognition	6		4	2	
Content Module 2. Open Science: A New Era of Scientific Communication					
Topic 1. Open Science: Definition, Principles, UNESCO Strategy	6		4	2	

Topic 2. Components of Open Science: Knowledge, Infrastructure, Participation	8		4	4	
Topic 3. Ethical and Value Foundations of Open Science	8		4	4	
Topic 4. Open Science in the Medical Field: Risks, Benefits, Challenges	6		4	2	
Topic 5. Institutional Open Science Policies in Ukraine and the EU	6		4	2	
Individual work: written paper (essay)	6			4	2
Final assessment: pass/fail credit	4			2	2
TOTAL HOURS	90		40	50	

9. THEMATIC PLAN

9.1. Thematic Plan of Lectures- *l*ectures are not by the curriculum.

9.2. Thematic Plan of Seminar Classes - Seminar classes are not by the curriculum.

9.3. THEMATIC PLAN OF PRACTICAL CLASSES

No.	Topic Title	Hours
1	Science as a Historical and Cultural Phenomenon	2
2	Philosophical and Scientific Traditions of Antiquity, the Middle Ages, and the Renaissance	4
3	Classical Science of the Modern Era: 17th–18th Centuries	2
4	Nonclassical and Post-Nonclassical Science (19th–20th Centuries)	2
5	Science and Society: Social, Cultural, and Political Dimensions	2
6	History of Science in the Context of Medical Practice	4
7	Structure and Methods of Scientific Cognition	4
8	Open Science: Definition, Principles, UNESCO Strategy	4
9	Components of Open Science: Knowledge, Infrastructure, Participation	4
10	Ethical and Value Foundations of Open Science	4
11	Open Science in the Medical Field: Risks, Benefits, Challenges	4
12	Institutional Open Science Policies in Ukraine and the EU	4
	Total	**40**

9.4. THEMATIC PLAN OF INDEPENDENT STUDY

No.	Topic Title	Hours
1	Science as a historical and cultural phenomenon	4
2	Philosophical and scientific traditions of Antiquity	2
3	Philosophical and scientific traditions of the Middle Ages and the Renaissance	2
4	Classical science of the Modern period (17th–18th centuries)	4
5	Post-nonclassical science of the 20th century	4
6	Influence of socio-political context on the development of science	4
7	Historical aspects of scientific activity in medicine	2
8	Social aspects of the history of science	2
9	Structure and levels of scientific cognition	2
10	Methods of scientific research: classification and functions	2
11	Values and ethical foundations of science	2
12	The concept of Open Science (UNESCO definition)	4

13	Open scientific infrastructure: repositories, journals, platforms	2
14	Public participation in science: citizen science	2
15	Advantages of Open Science for medical research	2
22	**Individual assignment (essay)**	6
	Final assessment (pass/fail test)	4
	Total	**50**

9. LIST OF INDIVIDUAL ASSIGNMENTS

No.	Topic Title	
1	Origins of scientific thinking in the ancient world	essay
2	Ancient Greek mathematics, astronomy, and medicine	essay
3	History of scientific academies: from the 17th century to the present	essay
4	Galileo and the formation of the experimental method	essay
5	The impact of the Enlightenment on the development of science	essay
6	Scientific discoveries of the Renaissance and their role in shaping the socio-cultural autonomy of science	essay
7	Nonclassical science of the 19th century: main features and philosophical interpretations	essay
8	Post-nonclassical science: paradigms, challenges, and characteristics	essay
9	Social and political factors in the history of science	essay
10	History of medical science: from Hippocrates to modern evidence-based medicine	essay
11	Methodological foundations of scientific research. Empirical and theoretical methods of cognition	essay
12	Alternative approaches to explaining the development of scientific knowledge	essay
13	Interdependence of scientific discoveries, innovations, and technological modernization	essay
14	State support of fundamental research	essay
15	Commercial aspects of scientific development	essay
16	Significance of intellectual property law	essay
17	Freedom of scientific inquiry	essay
18	Possibilities for the humanization of science	essay
19	Humanization and humanitarianization of education	essay
20	The concept of Open Science in UNESCO documents	essay
21	Open scientific infrastructure: principles and examples	essay
22	Accessibility of knowledge in the global scientific environment	essay
23	Intellectual property and Open Science: conflicts and compromises	essay
24	Ethical foundations of Open Science: transparency, responsibility, inclusiveness	essay
25	Medical ethics in the context of Open Science: cases and discussions	essay
26	Open education and science in the context of digital transformation	essay
27	Open Science policies in the European Union	essay
28	Current state and prospects of Open Science implementation in Ukraine	essay
29	The role of the history of science in shaping academic integrity	essay
30	Science and war: historical examples of the impact of conflicts on knowledge development	essay
31	Open access to medical information: privacy issues	essay

10. TASKS FOR INDEPENDENT STUDY

1. Main stages of scientific development: from Antiquity to modernity
2. Scientific revolutions and their impact on medical and dental research
3. The role of outstanding scientists in shaping modern scientific methodology
4. Development of biomedical sciences in the context of changing scientific paradigms
5. Evolution of dental science: historical trends and key discoveries
6. Philosophical approaches to understanding science: positivism, post-positivism, critical realism
7. The concept of scientific paradigm according to T. Kuhn
8. Criteria of scientific validity: views of K. Popper, I. Lakatos, and P. Feyerabend
9. The problem of truth in scientific knowledge
10. Logic of scientific research: hypothesis, theory, law, concept
11. Main methods of scientific cognition and their application in biomedical disciplines
12. Interdisciplinarity in modern scientific research
13. Typology of scientific research in dentistry (review, experimental, clinical studies)
14. Structure of scientific research: problem, aim, objectives, methods, results
15. Pseudoscience and manipulation in science: how to identify them
16. Concept and principles of Open Science
17. FAIR principles of scientific data management
18. Open Science in the EU: initiatives, policies, requirements (UNESCO, EOSC)
19. Open access publications: advantages, risks, access models
20. Open repositories (OSF, Zenodo): purpose and use
21. Ethical foundations of scientific research
22. Academic integrity: types of violations and responsibility
23. Plagiarism, falsification, and manipulation in science
24. Scientific presentations: structure, logic, and design
25. Researcher tools: ORCID, ResearchGate, Google Scholar

11. METHODS AND FORMS OF ASSESSMENT (including criteria for evaluating learning outcomes)

Ongoing assessment is conducted at each practical class in accordance with the specific learning objectives of the topic. It is recommended to apply objective (standardized) methods of assessment of students' theoretical knowledge and practical skills.

The following assessment tools are recommended to diagnose the level of students' preparedness:

- oral questioning;
- a system of training exercises and creative tasks;
- sets of test items;
- independent (self-directed) work;
- preparation of essays and scientific reports.

The final form of assessment is a pass/fail test (credit). The credit is awarded on the basis of the cumulative score of ongoing learning activities (in points), which is assigned during the assessment of theoretical knowledge and practical skills in accordance with the lists defined by the course syllabus.

The maximum number of points a PhD student may obtain is 200, including points awarded for individual independent work.

During the assessment of each topic, the PhD student receives grades according to the four-point (traditional) grading scale, using the assessment criteria approved by the University for the relevant discipline. All types of learning activities предусмотрені by the course syllabus are taken into account.

Grades awarded according to the traditional scale are converted into points depending on the total number of topics.

12. SCHEME OF POINT ACCUMULATION AND DISTRIBUTION

The pass/fail test (credit) is awarded based on the total number of points obtained for ongoing learning activities, which are assigned during the assessment of theoretical knowledge and practical skills in accordance with the lists defined by the course syllabus.

The maximum number of points a PhD student may obtain is 200, including points awarded for individual independent work.

During the assessment of each topic, grades are assigned according to the four-point (traditional) grading scale, using the assessment criteria approved by the University for the relevant discipline. All types of learning activities provided by the methodological guidelines for the topic are taken into account.

Grades awarded according to the traditional scale are converted into points depending on the number of topics studied.

Module number – total number of contact hours / number of ECTS	Number of content modules and their numbers	Number of practical classes	Conversion of traditional grades into points					Minimum number of points required
			Traditional grades				Points awarded for completion of an individual assignment	
			"5"	**"4"**	**"3"**	**"2"**		
Module 1 90/3	2 (№ 1-2)	12	15	12,5	10	0	20	120

Forms of ongoing assessment are standardized and include evaluation of both theoretical knowledge and practical skills.

The final score for ongoing assessment is calculated as the arithmetic sum of points obtained for each practical class.

The maximum number of points a PhD student may obtain for ongoing activities is calculated by multiplying the number of points corresponding to the grade “5” by the total number of topics, but may not exceed **200 points**.

For example: 15 × 12 = 180 points. If the PhD student successfully completes the individual independent assignment, the maximum total score equals **200 points**.

The minimum number of points required for admission to the final assessment is calculated by multiplying the number of points corresponding to the grade “3” by the number of topics, but may not be less than 120 points.

For example: 10 × 12 = 120 points. In this case, completion of the individual independent assignment is not mandatory.

Assessment of Individual Assignments

he individual assignment consists of writing an **essay** on one of the proposed topics.

Points for the individual assignment are awarded only in the case of successful completion and defense of the essay (**10 points**).

Points obtained for the individual assignment are added to the total number of points accumulated through ongoing learning activities.

Individual work intended for in-class performance is assessed during the ongoing assessment of the relevant topic.

Admission to the Final Assessment

PhD students are admitted to the final assessment (credit) provided that they:

- have attended all mandatory in-class activities specified in the syllabus, and
- have obtained a total score not lower than the minimum required.

In cases of justified absence, adjustments are made to the individual study plan, and the PhD student is allowed to complete missed academic activities within a specified period. In cases of unjustified absence, the decision on making up missed classes is taken by the Head of the Doctoral and Postgraduate Studies Unit.

The final assessment (credit) is considered passed if the PhD student has obtained not less than 120 points**.**

The credit is recorded by the instructor in the following official documents:

- Record of Ongoing and Final Assessment Results (Form No. H-5.03-2);
- Individual Study Plan of the PhD Student;
- Attendance and Academic Performance Register.

Points obtained for the course by PhD students who have successfully completed the programme are converted into the traditional four-point grading scale according to absolute criteria, as presented in the relevant table.

Score on the 200-point scale	Traditional four-point grade
From 180 to 200 points	**«5»**
From 150 to 179 points	**«4»**
From 149 to the minimum required number of points	**«3»**
Below the minimum required number of points	**«2»**

PhD students enrolled in the same specialty are ranked according to the total number of points obtained in the course and assigned ECTS grades as follows:

ECTS grade	Statistical distribution
«A»	**Top 10% of PhD students**
«B»	**Next 25% of PhD students**
«C»	**Next 30% of PhD students**
«D»	**Next 25% of PhD students**
«E»	**Bottom 10% of PhD students**

The ranking and assignment of ECTS grades (A, B, C, D, E) are carried out by the Department of Doctoral and Postgraduate Studies for PhD students of the relevant specialty **who have successfully completed the course**.

PhD students who receive grades “FX” or “F” (“2”) are not included in the ECTS ranking, even after retaking the credit assessment. After retaking, such students are **automatically assigned the ECTS grade “E.”**

Definition of failure grades

FX is assigned to PhD students who have not passed at least one topic of the course (up to a maximum of 40% of the course content) by the end of the course. Students in this category are entitled to retake the credit assessment according to the approved schedule, but no later than the beginning of the next semester. The credit assessment may be retaken no more than two times.

F (“2”) is assigned to PhD students who attended all required classroom activities but failed to obtain at least 60% of the minimum required points for current academic performance and were therefore not admitted to the credit assessment. Students in this category are entitled to **repeat the course**.

With the permission of the Rector, a PhD student may improve the final grade by retaking the credit assessment, no more than three times during the entire period of study.

14. RECOMMENDED LITERATURE:

14.1 Core (Basic) Literature:

1. **Popper, K.** *The Logic of Scientific Discovery.* London: Routledge, 2002. – 545 p.
2. **Kuhn, T. S.** *The Structure of Scientific Revolutions.* 4th ed. Chicago: University of Chicago Press, 2012. – 264 p.
3. **Lakatos, I.** *The Methodology of Scientific Research Programmes.* Cambridge: Cambridge University Press, 1978. – 250 p.
4. **Humphreys, P. (Ed.).** *The Oxford Handbook of Philosophy of Science.* Oxford: Oxford University Press, 2016. – 840 p.
5. **Kosso, P.** *Philosophy of Science: A Contemporary Introduction.* London: Routledge, 2011. – 336 p.
6. **Johansson, L.-G.** *Philosophy of Science for Scientists.* Cham: Springer, 2016. – 314 p.
7. **Nielsen, M.** *Reinventing Discovery: The New Era of Networked Science.* Princeton: Princeton University Press, 2011. – 272 p.
8. **UNESCO.** *UNESCO Recommendation on Open Science.* Paris: UNESCO Publishing, 2021.
9. **Bezjak, S., et al.** *Open Science Training Handbook.* FOSTER Consortium, 2018.

14.2 Supplementary (Additional) Literature:

1. **Doldirina, C.** Open Science and Data Governance in Europe. – Data & Policy, 2021.-22 p.
2. **Levin, N., Leonelli, S.** How Does Open Science Change Epistemic Practices? – Frontiers in Research Metrics and Analytics, 2022. P 280-305
3. **Ladyman, J.** *Understanding Philosophy of Science.* London: Routledge, 2002. — 304 p.
4. **Hempel, C. G.** *Aspects of Scientific Explanation and Other Essays in the Philosophy of Science.* New York: Free Press, 1965. — 488 p.
5. **Kitcher, P.** *The Advancement of Science: Science without Legend, Objectivity without Illusion.* Oxford: Oxford University Press, 1993. — 448 p.
6. **Lindberg, D. C.** *The Beginnings of Western Science: The European Scientific Tradition in Philosophical, Religious, and Institutional Context, 600 BC to AD 1450.* Chicago: University of Chicago Press, 2007. — 480 p.
7. **Feyerabend, P.** *Against Method.* London: Verso, 2010. — 296 p.
8. **Feynman, R.** *The Meaning of It All: Thoughts of a Citizen-Scientist.* Reading, MA: Addison-Wesley, 1998. — 144 p.
9. **Koepsell, D.** *Scientific Integrity and Research Ethics.* Cham: Springer, 2017. — 124 p.
10. **Levin, N., Leonelli, S.** How Does Open Science Change Research Practices? *Frontiers in Research Metrics and Analytics*, 2022. — pp. 280–305.
11. **Tennant, J. P., et al.** Ten Hot Topics around Scholarly Publishing. *F1000Research*, 2020. — pp. 1–6.
12. **Vicente-Sáez, R., Martínez-Fuentes, C.** Open Science Now: A Systematic Literature Review. *Journal of Business Research*, 2020. — pp. 428–436.
13. **Tennant, J. P**. et al. Ten Hot Topics around Scholarly Publishing. – F1000Research, 2020. P 1-6.
14. **Vicente-Sáez, R., Martínez-Fuentes, C**. Open Science now: A Systematic Literature Review. – Journal of Business Research, 2020, pp. 428-436.

14.3 Information Resources:

1. https://arxiv.org – Open-access preprint repository.
2. https://cambridge.org/core – Cambridge Core: academic publications in the humanities and social sciences.
3. https://core.ac.uk – CORE: search engine for open-access repositories.
4. https://directory.doabooks.org – Directory of Open Access Books.

5. https://doaj.org – Directory of Open Access Journals.
6. https://europepmc.org – Europe PMC: open-access biomedical literature repository.
7. https://fosteropenscience.eu – Open Science training and support platform.
8. https://openresearchlibrary.org – Open Research Library.
9. https://oapen.org – Open-access academic books platform.
10. https://openaire.eu – European Open Science infrastructure.
11. https://philpapers.org – Bibliography and archive for philosophy.
12. https://plato.stanford.edu – Stanford Encyclopedia of Philosophy.
13. https://researchgate.net – Academic social network and research sharing platform.
14. https://unesco.org/en/open-science – UNESCO Open Science portal.
15. https://zenodo.org – Open-access repository for research outputs and data.

15. COMPILERS OF THE DOCTORAL STUDENT'S HANDBOOK (SYLLABUS)

Moysey A. A. – Head of the Department of Social Sciences and Ukrainian Studies, Professor, Doctor of Historical Sciences.