Odessa National Medical University
Department of philosophy and bioethics

Syllabus of the course
PHILOSOPHY AND METHODOLOGY OF SCIENTIFIC AND MEDICAL KNOWLEDGE

Volume	3 credits (90 h)
Semester, year of study	II semester, 1st year
Time/place	The time and place (classroom number, auditorium) of classes are determined according to the approved schedule of the department at the address of Pasteur 2.
Faculty members	Khanzhy Volodymyr; D.Sc., professor; head of the department of philosophy and bioethics
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Working place	Office of the head of the department at Pasteur 2
Tutoring/ guidance/consultations	*Off line*: Thursdays – 14.00-16.00; Saturdays – 9.00-13.00 *Online:* Thursdays – 14.00-16.00; Satursdays – 9.00-13.00 *Microsoft Teams, Telegram/Viber*

COMMUNICATION

Communication with graduate students will be carried out in person (at the department); and remotely (E-mail, Microsoft Teams, Telegram, Viber, etc.).

COURSE ANNOTATION

Subject matter of the discipline: ontological, epistemological, logical and methodological, and anthropological problems of science, in particular, methodological grounds, structure and development of scientific knowledge in medicine.

Course prerequisites and post-requisites (The place of the discipline in the educational program).

The study of the academic discipline "Philosophy and methodology of scientific and medical knowledge" is based on previous (providing) disciplines: "Philosophy" (undergraduate course), "Basics of bioethics and biosafety" (undergraduate course), as well as specialty disciplines. At the same time, the study of this discipline ensures the preparation of graduate students and candidates for mastering the following disciplines of the first year of study – "Academic integrity and professional ethics of scientific activity" and "Teaching methods in higher education".

The aim of the course is to improve the quality of training of graduate students and candidates in the field of philosophy and methodology of science, mastering of

the theoretical and methodological apparatus of modern science, formation of a system of bioethical thinking of a doctor-scientist.

Course objectives:

- definition of the philosophical foundations of the modern scientific picture of the world;
- handling of philosophical categories and concepts;
- clarification of basic concepts and problems of ontology, methodology and axiology of science;
- understanding of the philosophical problems of existence and knowledge from a scientific and medical perspective;
- determination of the regularities of the development of science, in particular the priority directions of the development of medicine;
- clarification of the essence and methodology of the scientific research process, stages and regularities of the cognitive process;
- determination of the principles of generating scientific hypotheses and the technology of formulating a research question;
- analysis and interpretation of the main theories, concepts and results of research in the chosen scientific direction;
- formation of the ability to apply the concepts of modern philosophy of science for planning and carrying out research work;
- understanding the problems of human existence in the context of modern science, in particular the problems of the essence of morality as a personal choice and a socio-cultural phenomenon;
- understanding of the basic principles of post-nonclassical science in the light of its human ladenness;
- clarification of the problems of humanization of modern medicine and ways to solve them;
- understanding of the socio-cultural, scientific and philosophical and methodological principles of bioethics and nooethics, as well as the ethical and legal principles of biomedical research.

Expected results

As a result of studying the discipline, graduate students should

know:

- patterns of cognitive processes;
- research ethics;
- types and sources of information;
- forms, methods and means of identification, search and storage of information;
- basics of rhetoric and theory of argumentation;
- professional vocabulary and terminology according to the direction of scientific research;
- stages and regularities of the cognitive process;
- essence and stages of the research process;
- methodology of scientific research;
- informative criteria for evaluating processes, functions, phenomena;

- opportunities and limitations of various research methods;
- the concept of novelty of research;
- writing technology and standards of design of scientific works for national and international scientific publications;
- scientometric databases and platforms (Scopus, Web of Science, RubMed, etc.).

be able to:

- operate with philosophical categories and concepts;
- constantly improve oneself educational and general cultural level;
- independently carry out educational and scientific activities;
- understand the peculiarities of scientific knowledge; express their views and make their own decisions;
- analyze the main theories and concepts by research direction;
- interpret the results of research of the chosen scientific direction;
- carry out a critical analysis of modern scientific literature;
- adequately assess the achievements and limitations of research in the chosen scientific direction;
- determine the degree of solving problems and needs of modern medical science;
- formulate research questions and hypotheses;
- choose and use adequate research methods to achieve the goal and objectives of the scientific project;
- determine the novelty, evaluate the theoretical and practical significance of the research;
- conduct data analysis and synthesis;
- conduct a meta-analysis of data, systematize them;
- master the culture of speech, methods of argumentation;
- present and discuss the results of their work in orally and in writing (in different languages).

DESCRIPTION OF THE COURSE

Forms and methods of teaching

The course will be presented in the form of lectures (16 hours) and seminars (30 hours), organization of independent work of students (44 hours); total: 90 hours (3 credits).

The study of the discipline is implemented on the basis of the following teaching methods:

- according to the dominant means of education: verbal, visual;
- drawing up graphic schemes;
- solving creative tasks;
- blitz survey;
-group discussions on problem situations;
- written tasks;
- individual control interview;
- logical exercises;
- role-playing (business) games;
- situational tasks (“case method”);

- individual philosophical research-project;

- a problem-based teaching method, which is aimed at forming students' capacity for dialogue and the ability to defend their own opinion;

- the “brainstorming” learning method, which encourages students to show a creative approach and find alternative methods of solving the proposed tasks through free expression of thoughts.

The content of the discipline

Topic 1. Subject matter, functions, purpose and principles of philosophy and methodology of science. Philosophical problems of medical knowledge.

Topic 2. The category of “Being” in philosophy. Natural and structural ontology. Ontological problems of modern medical knowledge.

Topic 3. Philosophical problems of the category of matter. Modern understanding of the human organism.

Topic 4. Space and time as the main forms and attributes of matter. The problem of time: ontological and anthropological aspects.

Topic 5. Consciousness as a philosophical problem. Consciousness from the point of view of neurobiology. Consciousness and the unconscious. Consciousness and language. Social aspect of consciousness. The place and role of the mind-body problem in medicine.

Topic 6. Cognition as a philosophical problem. Knowledge as the subject matter of epistemology. Knowledge and its satellites. The problem of the truth of knowledge.

Topic 7. Methodology of scientific knowledge. Classification of methods of cognition. Forms of organization of scientific knowledge. Patterns of development of scientific knowledge.

Topic 8. System approach and general systems theory.

Topic 9. Dialectics as a method and theory of knowledge. Alternatives to dialectics. Synergetics as a theory and research method of self-organizing systems.

Topic 10. Logic as a science. Classification of logical systems. Deductive and inductive logic.

Topic 11. Specificity of human existence. Anthropocentrism, the anthropic principle and the idea of the “human-ladenness” of science. Relationship between philosophical anthropology, biology and medicine.

Topic 12. Bioethics as professional medical ethics. Problems of life and death, human health and illness in the context of bioethics. The meaning of human life.

Topic 13. Ethical and legal principles of regulation of biomedical research. Implementation of the principles of bioethics in medical practice. Ethical examination of biomedical research.

Topic 14. Global bioethics and nooetics as modern stages of development of bioethics.

List of recommended literature:

a) main:

Audi R. Epistemology: a contemporary introduction / Robert Audi / 3 ed. – London: Routledge, 2010. – 432 p.

Capra F., Luisi P.l. The systems view of life: a unifying vision / F. Capra, P.L. Luisi. – Cambridge: Cambridge UP, 2019. – 510 p.
Frigg R. Models and theories: a philosophical inquiry / Roman Frigg. – N.-Y.: Routledge, 2022. – 496 p.
Johansson L-G. Philosophy of science for scientists / Lars-G Johansson. – Springer undergraduate texts in philosophy. – Springer Cham: Springer IP, 2019. – 257 p.
Sadegh-Zadeh K. Handbook of Analytic Philosophy of Medicine / Kazem S-Z. – 2nd ed. – Dordrecht: Springer, 2018. – 1224 p.

b) additional:

Bardon A. A Brief History of the Philosophy of Time / A. Bardon. — New York : Oxford University Press, 2013. — IX, 185 p. : ill.
Heil J. Philosophy of mind: a contemporary introduction / John Heil / 4 ed. – London: Routledge, 2019. – 264 p.
Lyashenko D. The system study of consciousness: the problem of adequacy / Dmitriy Lyashenko // Development of scientific, technological and innovation space in Ukraine and EU countries. - 3rd ed. - Riga, Latvia: Baltija publishing, 2021. - pp. 340-365
Power S.E. Philosophy of time: a contemporary introduction / Sean Edna Power. – London: Routledge, 2021. – 310 p.
Prigogine I. Order Out of Chaos: Man's New Dialogue with Nature / I. Prigogine, I. Stengers / Foreword by Alvin Toffler. — London : Verso, 2017. — 384 p.
Swart H. Philosophical and mathematical logic / Harrie de Swart. - Springer undergraduate texts in philosophy. - Springer Cham: Springer IP, 2018. – 540 p.

ASSESSMENT

Current control is carried out at seminar classes in accordance with formulated tasks for each topic. When evaluating educational activities, preference is given to standardized control methods: oral survey, structured written works, discussions, role-playing games, reports. When mastering each topic for the current educational activity, the graduate student is given grades on a 4-point traditional scale. The current academic performance is calculated as the average current score, i.e. the arithmetic average of all grades received by the graduate student on a traditional scale, rounded to 2 (two) decimal places, for example 4.75.

Assessment of current discipline control:

The meaning of the **"excellent"** assessment: the graduate student shows special creative abilities, knows how to acquire knowledge independently, finds and processes the necessary information without the help of a professor, knows how to use the acquired knowledge and skills to solve problems, is able to produce innovative ways of solving problems, convincingly argues answers, independently reveals his own gifts and inclinations.

The meaning of the grade **"good"**: the graduate student has a good knowledge of the studied material, applies it in practice, solves exercises and problems in standard situations, and independently corrects the mistakes made, the number of which is insignificant.

The meaning of the grade **"satisfactory**": the graduate student is able to master a significant part of the theoretical material, but mainly in a reproductive form, demonstrates knowledge and understanding of the main provisions, can analyze the educational material with the help of the professor, correct errors, among which there are a significant number of essential ones.

The meaning of the grade **"unsatisfactory"**: the graduate student has mastered the material at the level of individual fragments, which constitute a small part of the educational material.

Only those graduate students who have no academic debt and have an average score for current academic activities of at least 3.00 are admitted to the final examination.

Forms and methods of final control.

The final control of the discipline "Philosophy and methodology of scientific and medical knowledge" is an exam.

The grade for the discipline is the arithmetic average of the two components:
1) average current score as the arithmetic average of all current grades;
2) traditional assessment for the exam.

The obtained average grade for the discipline by multiplying it by 40 (the obtained grade is rounded to integers) is converted into a grade on a 200-point scale, which, in turn, is converted into a traditional grade on a 4-point scale.

Average grade	200-point scale grade	4-point scale grade
4,62–5,0	185–200	5
3,77–4,61	151–184	4
3,0–3,76	120–150	3

Independent work

Assessment of the independent work of graduate students and candidate, which is provided by the topic of the lesson along with the classroom work, is carried out during the current control of the topic in the corresponding classroom session, as well as at the final control (exams).

COURSE POLICIES («rules of the game»)

Deadline and resit policy

The task must be completed on time according to the deadline. For late completion of the assignment, the graduate student receives an unsatisfactory grade. If the applicant for higher education was absent for some reason, then the retake is carried out within the time limits set by the professor in accordance with the "Regulations on the Organization of the Educational Process at ONMedU" (https://onmedu.edu.ua/wp-content/uploads/2020/01/osvitnij-proces.pdf). Resit is carried out in accordance with the approved schedule.

Academic integrity policy

The policy of the educational component is based on the principles of academic integrity (https://onmedu.edu.ua/wp-content/uploads/2020/07/polozhennja-pro-dobrochesnist.pdf) and is determined by the system of requirements that the teacher presents to the student when studying the educational component:

- independent performance of educational tasks, tasks of current and final control of learning results (for persons with special educational needs, this requirement is applied taking into account their individual needs and capabilities);
- references to sources of information in the case of using ideas, developments, statements, information.

Policies concerning attendance and tardiness

To obtain at least a satisfactory assessment, attendance and work in the classroom (lectures and seminars) is mandatory. Graduate students are allowed to be late no more than 10 minutes.

Mobile devices

It is permissible to use mobile devices during the lesson with the teacher's permission.

Behavior in the auditorium or lecture hall

While in the classroom, the following values should be cultivated: respect for colleagues; tolerance for others; receptivity and impartiality; argumentation of agreement or disagreement with the opinion of other participants in the discussion; respect for the dignity of the personality of the opponent/s during communication; observance of the ethics of academic relations.