MINISTRY OF HEALTH CARE OF UKRAINE
ODESSA NATIONAL MEDICAL UNIVERSITY
Department of philosophy, bioethics and foreign languages

Syllabus of the academic discipline
«Logic and Systemology»

Scope of the academic discipline	3 credits (90 h)
Semester, year of study	V-VI semester, 3rd year of study
Days, time, place of educational discipline	According to the schedule of classes, Department of Philosophy, Bioethics and Foreign Languages Odesa, 2 Pastera St.
Teacher(s)	Lyashenko Dmitriy; PhD., associate professor.
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Work place	Office № 8 of the Department of Philosophy, Bioethics and Foreign Languages Odesa, 2 Pastera St.
Consultations	*Face-to-face consultations:* from 14.00 to 16.00 on Thursday, from 9.00 to 13.00 on Saturday. *Online consultations:* from 14.00 to 16.00 on Thursday, from 9.00 to 13.00 on Saturday. via *Microsoft Teams* or *Telegram/Viber*

COMMUNICATION

Communication with students of higher education will be carried out remotely (tel., E-mail) and in person (at the teacher's workplace).

COURSE ANNOTATION

Subject matter of the discipline: Structural aspects and practical skills of logical, critical, analytical and systemic types of thinking.

Prerequisites of the course: The study of the discipline “Logic and Systemology” is related to the knowledge of the following disciplines of the 1st year: “Philosophy with the course of academic integrity”, “Fundamentals of bioethics and biosafety”, etc.

Postrequisites of the course: The study of this discipline ensures the preparation of students of higher education to master such diverse disciplines as "Fundamentals of scientific research in medicine", "Medical psychology", "Environmental medicine", "Management of marketing activities of health care institutions", etc.

The aim of the course is the development of logical and systemic types of thinking. In the process of studying the discipline, the emphasis is not on the descriptive-normative modeling of typical situations, and not on the communication of some set of knowledge, but on the development of critical and structurally correct thinking skills in its multifaceted integrity.

Course objectives:

- get acquainted with the subjects of logic and systems theory. Carry out correlations with subjects of biomedical cycles;
- form basic skills in using elements of the language of modern logic and the method of formalization;
- get practically acquainted with the structure and types of proof as a form of thinking;
- differentiate logical, critical, analytical and systemic types of thinking;
- lay the theoretical and practical prerequisites for structurally correct 'clinical thinking'.

Expected results:

As a result of studying the discipline, students of higher education should *know*:

- basic forms and structures of thinking;
- criteria for definition and differentiation of logical and critical, analytical and systemic types of thinking;
- elements of the language of modern logic;
- basic concepts of systemology;
- main types and procedures of proof as a form of thinking;
- basic errors in argumentation.

Students of higher education must *able to*:

- use categorical devices of logic and systemology to identify the formal-logical and theoretical-systemic structure of objects of any nature;
- conduct a systems analysis of objects, situations, processes;
- translate from natural language to formal language and vice versa;
- formulate and prove one's own opinion by logically correct means;

- model logically possible variants for the development of events;
- understand positions that do not coincide with one's own opinion;
- relying on the dual system modeling to consider complex objects in their integrity;
- differentiate the logical and axiological components of critical thinking.

Students of higher education must *have skills of*:

- ✓ deliberate application of rules and structures of logical, critical, analytical and systemic types of thinking;
- ✓ competent discussion;
- ✓ system and integral-perspective modeling of objects of arbitrary nature;
- ✓ correct use of the formalization method;
- ✓ reistic, attributive and relational analysis and synthesis;
- ✓ detection of contradictions in thinking activity;
- ✓ reflexive analysis of errors and inaccuracies in one's thinking.

COURSE DESCRIPTION

Forms and methods of teaching

The course will be presented in the form of seminars (30 hours), organization of independent work of students of higher education (60 hours).

The following teaching methods will be used during the teaching of the discipline: lectures, conversations, explanations, visual, practical (imaginary experiment); inductive, deductive, analytical, synthetic; explanatory-illustrative and problematic presentation, ‘microphone’, ‘brainstorming’.

Consultations (collective or individual) are held according to the schedule of consultations.

The content of the discipline.

Topic 1. The subject matter of logic. Basic forms of thinking. History and classification of logical theories. Critical thinking.

Topic 2. The subject matter of systemology. System method and system approach. Basic theoretical and systemic concepts.

Topic 3. The language of modern logic. Method of formalization.

Topic 4. Proof as a form of thinking. Types of proof. Argumentation and logical fallacies.

Topic 5. Analytical and systemic types of thinking.

Recommended literature

1. Capra, F., Luisi, P.l. The systems view of life: a unifying vision / AF. Capra, P. Luisi. - Cambridge: Cambridge UP, 2019. – 498 p.

2. Ladyman, J., Wiesner, K. What is a comlpex system? – New haven: YUP, 2020. – 170 p.

3. Lyashenko D. The system study of consciousness: the problem of adequacy // Development of scientific, technological and innovation space in Ukraine and EU countries. - 3rd ed. - Riga, Latvia: Baltija publishing, 2021. - pp. 340-365.

4. Mobus, G. E., Kalton, M.C. Principles of systems science / G. Mobus, M. Kalton. – New York: Springer science, 2018. – 756 p.

5. Swart H. Philosophical and mathematical logic. - Springer undergraduate texts in philosophy. - Springer Cham: Springer IP, 2018. – 540 p.

6. Canale D., Frigerio A., Tuzet G., Ciuni R. Critical thinking: an introduction. – Milan: BUP, 2022. – 268 p.

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, testing. When mastering each topic for the current educational activity, the student of higher education is given grades on a traditional 4-point scale. The current academic performance is calculated as the average current score, i.e. the arithmetic average of all grades received by the student of higher education on a traditional scale, rounded to 2 (two) decimal places, for example 4.75.

Current control.

Student gets '5' if:

the student of higher education demonstrates a high enough level of knowledge of the discipline; understands the main problems, concepts and theories of the discipline, has his or her own opinion and is able to defend it with arguments; able to freely use the acquired knowledge in their professional field.

Student gets '4' if:

the student of higher education demonstrates proper mastery of basic concepts of the discipline, but there are minor errors that do not significantly change the general course of thought; the student of higher education receives a score from the specified range also if in response there is uncertainty in attempts to apply general disciplinary concepts or theories to solve specific problems, or, conversely, understanding the essence of specific practical tasks in the end does not lead to proper generalization.

Student gets '3' if:

the student's of higher education answer is mostly reproductive and devoid of proper understanding, there are significant gaps in knowledge of the basics of the discipline, confusion in understanding the fundamental general questions, the student of higher education finds it difficult to give examples that should specify the answer.

Student gets '2' if:

the student of higher education is not able to answer questions even at the level of reproductive of materials of the manual or lecture, questions from the teacher that should help are not clear to the student of higher education, there is no elementary ability to specify disciplinary concepts and place the discipline in question among other scientific disciplines.

Average score for the discipline	Evaluation of the discipline on a 200-point scale	Evaluation of the discipline on a 4-point scale (traditional evaluation)
4,62–5,0	185–200	5
3,77–4,61	151–184	4
3,0–3,76	120–150	3

Assessment of IWSHE. Students' of higher education independent work is assessed during the current control of the topic in the relevant seminar (with appropriate assessment criteria).

COURSE POLICIES

Deadline and resit policy

- Absences are atoned with the permission from the dean's office if there are good reasons (for example, a doctor's note) according to the departmental schedule.
- The student of higher education has the right during the semester to resit the current unsatisfactory grades only in order to achieve an average score of 3.00.
- Current unsatisfactory grades should be 'reworked' by the student of higher education to his / her teacher.

Academic integrity

Adherence of students of higher education to academic integrity presupposes:

- ✓ independent performance of educational tasks, tasks of current and final control of learning outcomes (for persons with special educational needs this requirement is applied taking into account their individual needs and opportunities);
- ✓ references to sources of information in the case of the use of ideas, developments, statements, information;
- ✓ providing reliable information about the results of their own (scientific, creative) activities, used research methods and sources of information.

Inappropriate actions include use of prohibited auxiliary materials or technical means during checks (cheat sheets, notes, earphones, phones, smartphones, tablets, etc.).

Mobile devices may be used in the classroom only during online classes (in the case of distance learning) or as a source of educational information (with the permission from the teacher), etc.

Policies concerning attendance and tardiness

Attendance is a mandatory component of assessment. The absence is equated to academic debt and requires academic 'redemption'. It is forbidden to be late for classes and to be 'retarded'.

Behavior in the auditorium or lecture hall

- Students of higher education must adhere to moral standards, both in interaction with the teacher and in relation to their colleagues.
- To greet the teacher, students of higher education must stand up.
- No outside conversations (including on a mobile phone) or other noise that interferes with the lessons are allowed.
- Walking in and out of the classroom during the lesson is allowed only with the permission of the teacher.