



THE SYLLABUS OF THE EDUCATIONAL COMPONENT METHODOLOGY AND LOGIC OF SCIENTIFIC RESEARCH

for higher education applicants 1 year part time forms of education
educational programme “Quality, standardization and certification”
speciality “073 management”
area of knowledge “07 Management and administration”
Master level of higher education

TEACHERS

Information about the teacher

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1. **Name of the higher education institution and structural unit:** National University of Pharmacy, Department of management, marketing and quality assurance in pharmacy.
2. **Department address:** Valentynivska st., 4, Kharkiv, Ukraine, 61168.
3. **Department website:** <https://mmqaph.nuph.edu.ua/>
4. **Consultations:** take place according to the online schedule (<https://mmqaph.nuph.edu.ua/grafiki-potochnih-konsultacij/>).
5. **Abstract of the educational component:** “Methodology and logic of scientific research” is part of the compulsory component of the training plan for specialists on the educational and qualification level “Quality, standardization and certification”. The subject of the discipline «Methodology and logic of scientific research» is theoretical, methodological, methodical bases of research activity, its technological, organizational, legal support.
6. **Purpose of teaching the educational component:** is formation of knowledge on methodology, theory of method and process, psychology, methodological support of research activity, formation and improvement of such speech skills as English reading, speaking and writing, which will help improve the communicative competence of higher education students.
7. **Competencies in accordance with the educational programme:**
Soft- skills / General competencies (GC):
 GC 1. The ability to conduct research at the appropriate level;
 GC 8. The ability to find, process and analyze information from various sources.
Hard-skills / Professional (speciality) competencies (PC):
 PC 3. The ability for self-development, lifelong learning and effective self-management.
8. **Programme learning outcomes (PLO):**
 PLO 1. Critically comprehend, choose and use the necessary scientific, methodical and analytical tools for management in unpredictable conditions;
 PLO 9. To be able to communicate in professional and scientific circles in state and foreign languages.
9. **The status of the educational component:** compulsory.
10. **Prerequisites of the educational component:** “Methodology, methods and tools of quality management”, “Information technology in quality management,” etc.
11. **The scope of the educational component:** 3 ECTS credits.
 Full time study: 38 hours of classroom classes, including 18 hours of lectures, 20 hours of practical classes, 52 hours of independent work.

Part time study: 18 hours of classroom classes, including 10 hours of lectures, 8 hours of practical classes, 72 hours of independent work.

12. Organisation of the teaching process:

Teaching methods:

The following methods are used:

- *explanatory (information and reproductive) method*: lecture-based learning – lectures, video materials;
- *reproductive method*: traditional practical classes;
- *problem-based learning*: brainstorming;
- *partially-search method*: project-based learning;
- *research method*: research-based learning – participation in research work, preparation of abstracts of reports at the conference, scientific articles.

The content of the educational component:

Content module 1. Methodology and logic of scientific research.

Topic 1. The specifics of scientific knowledge. Dialectical and logical bases of scientific knowledge.

Topic 2. The place of scientific research in the life cycle of pharmaceutical products.

Topic 3. Legal and regulatory framework governing scientific research.

Topic 4. Levels and methods of scientific research. The main stages and forms of the scientific research process.

Topic 5. Intellectual property in scientific research.

Topic 6. Organization of scientific research work.

Topic 7. Information support of scientific research.

Topic 8. Presentation of scientific research results.

Organisation of individual work:

Individual work involves studying topic 8 of the educational component that is not included in classroom learning, and performing tasks on these topics in order to consolidate the theoretical material.

13. Types and forms of control:

Types and forms of control:

Current control:

Knowledge control in each lesson (on each topic): oral questioning, passing test tasks, solving situational tasks.

Control of content modules: passing test tasks, solving situational tasks.

Conditions for admission to the control of content modules: for admission to the control of content module 1, you must have a minimum number of points for the topics (classes) of content module 1.

Semester control:

The form of semester control: semester credit test.

Conditions for admission to the semester control:

The current rating is more than 60 points, the academic detention of missed practical classes, the fulfilment of all types of work and requirements provided for in the working programme of the educational component.

14. The assessment system for the educational component:

Assessment of the acquisition of topics of the educational component during classes:

Assessment of the acquisition of topics of the educational component during classes.			
<i>The number of the topic (lesson) of the educational component</i>	<i>The maximum number of points by topic (lesson)</i>	<i>Distribution of the maximum number of points per topic (lesson) by type of work</i>	<i>Types of work for which the applicant receives points</i>
Content module 1			
Topic 1.	7,5	1,5	<i>testing</i>
		3	<i>answer to theoretical questions</i>
		3	<i>solving situational problems</i>
Topic 2.	7,5	1,5	<i>testing</i>
		3	<i>answer to theoretical questions</i>
		3	<i>essay</i>
Topic 3.	7,5	1,5	<i>testing</i>
		3	<i>answer to theoretical questions</i>
		3	<i>essay</i>
Topic 4.	7,5	1,5	<i>testing</i>
		3	<i>answer to theoretical questions</i>
		3	<i>answer to theoretical questions</i>
Topic 5.	4,5	1,5	<i>testing</i>
		3	<i>answer to theoretical questions</i>
Topic 6.	7,5	1,5	<i>testing</i>
		3	<i>answer to theoretical questions</i>
		3	<i>essay</i>
Topic 7.	7,5	1,5	<i>testing</i>
		3	<i>solving situational problems (search)</i>
		3	<i>solving situational problems</i>
Topic 8.	10,5	1,5	<i>testing</i>
		3	<i>solving situational problems</i>
		6	<i>presentation, abstract (self-study)</i>
Total points for content module 1:		60	
Total points per module:		60	

The study of the educational component by higher education applicants is possible through non-formal education. Instead of performing types of work on the topic of the educational component, the following types of work of a higher education applicant can be credited:

- taking training courses or distance courses on the use of modern educational technologies on Coursera, Prometheus and other platforms (if there is a corresponding document on their completion, providing a copy to the teacher);
- participation in master classes, forums, conferences, seminars, webinars on the topic of the educational component (with the preparation of essays, abstracts, informational messages, etc.; it is confirmed by the program of the event, or abstracts of reports, or the corresponding certificate);
- participation in research and applied research on the topic of the educational component (in the

development of questionnaire forms, conducting experimental research, processing research results, preparing a report, presenting results, etc.; it is confirmed by the demonstration of relevant materials).

The assessment of applicants by type of work during classes:

<i>Types of work for which the applicant receives points</i>	<i>The maximum number of points</i>
<i>testing</i>	<i>12</i>
<i>answer to theoretical questions</i>	<i>21</i>
<i>solving situational problems</i>	<i>12</i>
<i>essay</i>	<i>9</i>
<i>individual work</i>	<i>6</i>
<i>Total points:</i>	<i>60</i>

The assessment during the content module control:

<i>Types of work for which the applicant receives points</i>	<i>Distribution of the maximum number of points for the content module control by type of work</i>	<i>The maximum number of points for the content module control</i>
<i>Content module 1</i>		
<i>testing</i>	<i>30</i>	<i>40</i>
<i>answers to theoretical questions</i>	<i>10</i>	
<i>Total points for control of the content modules:</i>		<i>40</i>

Assessment of individual work of a higher education applicant:

during the current control: 6 points: – preparing a presentation, abstract (Topic 8).

during the control of content module 1: cards for content module 1 include theoretical questions and test tasks on the topic 8.

The assessment scale of semester credit test:

When studying the educational component, several assessment scales are used: 100-point scale, four-point scale (“Excellent”, “Good”, “Satisfactory”, “Unsatisfactory”) differentiated scale (for semester differentiated credit test) and ECTS rating scale. Results are converted from one scale to another according to the table.

Total points by a 100-point scale	ECTS rating scale	Assessment by a four-point scale
90-100	A	Excellent
82-89	B	Good
74-81	C	
64-73	D	Satisfactory
60-63	E	
35-59	FX	Unsatisfactory
1-34	F	

15. Educational component policies:

Academic Integrity Policy. It is based on the principles of academic integrity given in the Regulation “On measures to prevent cases of academic plagiarism in the NUPh”. Cheating when assessing the success of a higher education applicant during control activities in practical (seminar, laboratory) classes, monitoring of content modules and semester examinations is prohibited (including using mobile devices). Abstracts must have correct text links to the literature used. Identification of signs of academic dishonesty in the written work of a higher education applicant is the basis for its disregard by the teacher.

Class attendance policy. A higher education applicant is required to attend academic studies (Regulation

“On the organisation of the educational process of the NUPh”) according to the class schedule (<https://nuph.edu.ua/rozklad-zanyat/>), adhere to ethical standards of behaviour.

Policy on deadlines, academic detention, improving the rating, and eliminating academic debt. Academic detention of missed classes by a higher education applicant is carried out in accordance with the “Regulations on academic detention of missed classes by applicants and the procedure for eliminating the academic difference in the curriculum in the NUPh” in accordance with the schedule for academic detention of missed classes set at the Department. Improving the rating and eliminating academic debt on the educational component is carried out by higher education applicants according to the procedure given in the Regulation “On the procedure for assessing the learning outcomes of higher education applicants in the NUPh”. Higher education applicants are required to comply with all deadlines set by the Department for performing types of written works on the educational component. Works that are submitted in violation of deadlines without valid reasons are rated at a lower rating – up to 20% of the maximum number of points for this type of work.

Policy on challenging the assessment on the educational component (appeals). Higher education applicants have the right to appeal the assessment on the educational component obtained during control activities. The appeal is carried out in accordance with the “Regulations on appealing the results of semester control of knowledge of higher education applicants in the NUPh”.

Policy on the recognition of learning outcomes obtained through non-formal and/or informal education by higher education applicants. Higher education applicants have the right to recognise the results of training acquired in non-formal and informal education in accordance with the Regulation “On the procedure for recognising learning outcomes obtained through non-formal and/or informal education by applicants for higher education in the NUPh”.

Within the framework of academic freedom of the teacher, instead of performing types of work on the topic of the educational component, it is possible to credit a non-formal education of a higher education applicant.

16. Information and methodological support of the educational component:

Required reading	<ol style="list-style-type: none"> 1. Посилкіна О. В. Методологія наукових досліджень та інноваційний розвиток : навч. посіб. / О. В. Посилкіна, О. В. Літвінова, Ю. С. Братішко - Х. : НФаУ, 2020. – 220 с. 2. Prabhat Pandey, Meenu Mishra Pandey. Research methodology: tools and techniques. – Bridge Center, 2015. – 99 p. 3. Посилкіна, О. В. Управління інноваційною діяльністю : навч. посіб. для здобувачів вищої освіти, які навчаються за ОПП «Фармація» / О. В. Посилкіна, О. В. Літвінова, Ю. С. Братішко. - Х. : НФаУ, 2018. – 270 с. 4. Litvinova E.V., Posilkina O.V., Krutskikh T.V., Kovalenko S.M. Methodology and logic of scientific research : method. recommend. for practical studies for students of educational programs “Quality, standardization and certification”, “Healthcare management and pharmaceutical business”. – Kharkiv: NUPh, 2023. – 30 p. 5. Litvinova E.V., Posilkina O.V., Krutskikh T.V., Kovalenko S.M. Methodology and logic of scientific research : method. recommend. for seminars for students of educational programs “Quality, standardization and certification”, “Healthcare management and pharmaceutical business”. – Kharkiv: NUPh, 2023. – 18 p. 6. Litvinova E.V., Posilkina O.V., Krutskikh T.V., Kovalenko S.M. Methodology and logic of scientific research : method. recommend. for the individual work for students of educational programs “Quality, standardization and certification”, “Healthcare management and pharmaceutical business”, “Business economics”. – Kharkiv: NUPh, 2023. – 28 p.
Additional literature for in-depth study of the educational component	<ol style="list-style-type: none"> 1. Закон України «Про науку і науково-технічну діяльність» № 1977-ХІІ від 13.12.91 р. – [Електронний ресурс] – Режим доступу: http://zakon.rada.gov.ua - Заголовок з екрану. 2. Закон України «Про інноваційну діяльність» від 04.07.2002 р. № 40–ІV, із змінами та доповненнями [Електронний ресурс] – Режим доступу: http://zakon.rada.gov.ua - Заголовок з екрану. 3. Закон України «Про лікарські засоби» від 04.04.96 р. № 124-96 із

	<p>змінами та доповненнями [Електронний ресурс] – Режим доступу: http://zakon.rada.gov.ua - Заголовок з екрану.</p> <p>4. Закон України «Про охорону прав на винаходи і корисні моделі» від 15.12.93 р. № 3687-XII, із змінами та доповненнями [Електронний ресурс] – Режим доступу: http://zakon.rada.gov.ua - Заголовок з екрану.</p> <p>5. Agreement on trade-related aspects of intellectual property rights. URL: https://www.wto.org/english/docs_e/legal_e/27-trips.pdf.</p> <p>6. Posylkina O. V. Patent science. Manual (abstract of lectures) for foreign students in speciality 8.110201 «Pharmacy» / O.V. Posylkina, E.V. Litvinova. – Kharkiv: NUPh «Golden Pages», 2012. – 164 p.</p> <p>7. Litvinova O, Klager E, Yeung AWK, Tzvetkov NT, Kimberger O, Kletecka-Pulker M, Willschke H and Atanasov AG (2023), Bibliometric analysis and evidence of clinical efficacy and safety of digital pills. Front. Pharmacol. 14:1023250. https://doi.org/10.3389/fphar.2023.1023250</p> <p>8. Litvinova O, Klager E, Tzvetkov NT, Kimberger O, Kletecka-Pulker M, Willschke H, et al. Digital Pills with Ingestible Sensors: Patent Landscape Analysis. Pharmaceuticals (Basel). 2022 Aug 19;15(8):1025. https://doi.org/10.3390/ph15081025</p>
Up-to-date electronic information resources (journals, websites, etc.) for in-depth study of the educational component	<p>1. Офіційний сайт бібліотеки ім. Вернадського [Електронний ресурс]. – Режим доступу: http://nbuv.gov.ua/</p> <p>2. Web of science [Електронний ресурс]. – Режим доступу: https://mjl.clarivate.com/home?PC=MASTER&Full=Baltic%20Journal%20of%20Economic%20Studies</p> <p>3. Scopus[Електронний ресурс]. – Режим доступу: https://www.elsevier.com/solutions/scopus/how-scopus-works/content</p> <p>4. PubMedCentral (PMC) http://www.pubmedcentral.nih.gov/about/openftlist.html</p>
Moodle distance learning system	https://pharmel.kharkiv.edu/moodle/course/view.php?id=4307

17. Material and technical support and software of the educational component:

Technical equipment: computer, video camera, multimedia projector, screen.

Software: Microsoft Word, Excel, Power Point, Acrobat rider, Google Workspace for Education Standard, ZOOM, MOODLE.