

SYLLABUS OF THE EDUCATIONAL COMPONENT



SIDE EFFECTS OF DRUGS

for higher education applicants of the 4th year of full-time form education
Educational program "Pharmacy"
Specialty 226 "Pharmacy, industrial pharmacy"
area of knowledge 22 "Health care"
Second (master's) level of higher education

TEACHERS

Information about the teacher

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- Name of higher education institution and unit:** National University of Pharmacy, Department of Pharmacology and Clinical Pharmacy.
- Address:** Kharkiv, str. Kulikovskaya, 12, 2nd floor, Ph. 057-706-30-69.
- Website:** <http://pharmacol.nuph.edu.ua>
- Consultations:** take place online in accordance with the schedule posted on the website of the Department of Pharmacology and Clinical Pharmacy (at the link <https://pharmacolpharmacother.nuph.edu.ua>).
- Abstract of the educational component:** the educational component "Side effects of drugs" provides students with the formation of a complete system of the theoretical knowledge on the basics of the side effects of drugs; an assimilation of the main principles of the pharmacological safety of the drugs; a familiarization with the basic principles of the formular system: the formulating regulations, Pharmstandard, the national treatment recommendations, the rational combinations of drugs; a familiarization with the general taking medications; increase the level of general and the scientific development of students, the formation of their outlook and horizons as a modern qualified pharmacists.
- The purpose statement of studying the educational component:** The teaching of the course "Side effects of drugs" is to form and deepen students' professional and competent knowledge about the side effects of drugs from different pharmacological groups and conditions of rational use of modern medicines.
- Competences in accordance with the educational program:**
Soft- skills / General competences (CG):
 CG 6. Knowledge and understanding of the subject area and understanding of professional activity.
Hard-skills / Professional (special) competences (PC):
 CP 1. The ability to act socially responsibly and civically.
 CP 2. Ability to apply knowledge in practical situations, make informed decisions.
 CP 4. Ability to think abstractly, analyze and synthesize, learn and be modernly educated.

CP 5. Ability to show initiative and entrepreneurship.

8. The program learning outcomes: (PLO):

PLO 5. To position one's professional activity and personal qualities on the pharmaceutical labor market; formulate the goals of one's own activity taking into account public and industrial interests.

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PLO 7. Perform professional activities using creative methods and approaches.

PLO 8. Carry out professional communication in the state language, use oral communication skills in a foreign language, analyze specialized texts and translate foreign language information sources.

PLO 13. To carry out sanitary and educational work in professional activities in the event of outbreaks of infectious, viral and parasitic diseases.

PLO 14. Determine the advantages and disadvantages of drugs of various pharmacological groups, taking into account their chemical, physicochemical, biopharmaceutical, pharmacokinetic and pharmacodynamic characteristics. Recommend to consumers nonprescription drugs and other products of the pharmacy assortment with the provision of advisory assistance and pharmaceutical care.

PLO 16. Determine the influence of factors that affect the processes of absorption, distribution, deposition, metabolism and excretion of the medicinal product and are determined by the condition, features of the human body and the physico-chemical properties of medicinal products.

PLO 25. To contribute to the preservation of health, in particular the prevention of diseases, the rational prescription and use of medicinal products. To conscientiously fulfill one's professional duties, to comply with the legislation on the promotion and advertising of medicinal products. Possess psychological communication skills to achieve trust and mutual understanding with colleagues, doctors, patients, consumers.

9. Status of the educational component: selective

10. Prerequisites of the educational component: Pharmacology", Physiology with the basics of anatomy", "Biological chemistry", "Pathological physiology", "Microbiology". provides a high level of biomedical training; lays the foundation study of clinical pharmacology, pharmacotherapy, pharmaceutical chemistry, toxicological chemistry, pharmaceutical care, pharmacoeconomics, involves the integration of teaching with these disciplines; creates the ability to apply this knowledge in the further education and professional activities; laying the foundations professionally oriented thinking, healthy lifestyles and prevention of functions in the human life.

11. Course volume: 3.0 ECTS credits 90 hours per the educational component: 32 hours of classwork (8 hours of lectures, 24 hours of practical classes), 58 hours of individual work.

12. Organization of training:

Teaching methods:

- explanatory (informational and reproductive) method: Lecture-based learning - lectures, video materials;
- problem-based teaching: Brainstorming - "brainstorming" method; Case-based learning - case method;
- partial search method: Game-based learning - game-based learning methods (business games); Team-based learning- a method of working in small groups.

Content of the educational component

Content module 1. General side effects of drugs. The pharmacotherapy complications in different age-specific groups. Side effects of drugs affecting the nervous system. Side effects of drugs affecting the work of organs and systems. Side effects of chemotherapeutic agents.

Topic 1. General side effects of drugs.

Topic 2. The pharmacotherapy complications in different age-specific groups (children, elderly patients, pregnant women and in women in the lactation period).

Topic 3. The side effects of drugs affecting afferent innervation: local anesthetics, astringent, coating, antacid agents and medicines containing volatile oils.

Topic 4. The side effects of drugs affecting efferent innervation.

Topic 5. The side effects of anti-allergic medicines.

Topic 6. The side-action of non-steroidal anti-inflammatory drugs, narcotic and non-narcotic analgesics.

Topic 7. The side-effects of drugs affecting the central nervous system.

Topic 8. The side effects of medications affecting the blood coagulation system, hemopoiesis and cerebral blood flow.

Topic 9. The side-effects of medicines affecting cardiovascular system, diuretics, antigouty drugs.

- Topic 10. The side effects of the cellular and tissue metabolism correctors, vitamin containing medicines.
 Topic 11. The side effects of medicines, affecting endocrine system, myometrium, contraceptives.
 Topic 12. The side-action of synthetic hypoglycemic medicines.
 Topic 13. The side-action of chemotherapeutical medicines (sulphonamide medicines, medicines, antibiotics, antiviral).
 Topic 14. The side-action of chemotherapeutical medicines antituberculous, antifungal, antitumor medicines.
 Topic 15. The side-action of the medicines affecting the gastro-intestinal tract.

Organization of independent work:

Independent work includes the study of topics 5, 6, 11, 12, 15 of the educational component, and the completion of tasks on these topics in order to consolidate the theoretical material

13.Types and forms of control:

Current control:

Control of knowledge at each lesson: oral survey, writing test tasks, solving situational (calculation) problems.

Control of content modules: compilation of test tasks, solution of situational (calculation) problems.

Conditions for admission to control of content modules: the presence of a minimum number of points for taking the content module, for control of content module 1 (for control of content module 2).

Semester control:

Semester control form: semester assessment

Conditions for admission to semester control: the current rating is more than 60 points, the presence of the minimum number of points for the control of the content module 1 and 2, the absence of unworked passes of seminar classes, the fulfillment of all the requirements stipulated by the work program of the educational component.

14.Evaluation system of the educational component:

Evaluation of mastering the topics of the educational component during classes:

<i>Topic number of the educational component</i>	<i>Maximum number of points per topic</i>	<i>Distribution of the maximum number of points per topic by types of works</i>	<i>Types of works for which the applicant receives points</i>
Content module 1. General side effects of drugs. The pharmacotherapy complications in different age-specific groups. Side effects of drugs affecting the nervous system. Side effects of drugs affecting the work of organs and systems. Side effects of chemotherapeutic agents.			
Topic 1.	4	2	oral answer
		1	test
		1	solving situational tasks
Topic 2.	4	2	oral answer
		1	test
		1	solving situational tasks
Topic 3.	4	2	oral answer
		1	test
		1	solving situational tasks
Topic 4.	4	2	oral answer
		1	test
		1	solving situational tasks
Topic 5. (topic for independent study)	4	4	solving situational tasks
Topic 6. (topic for independent study)	4	4	solving situational tasks
Topic 7.	4	2	oral answer
		1	test

		1	solving situational tasks
Topic 8.	4	2	oral answer
		1	test
		1	solving situational tasks
		1	solving situational tasks
Topic 9.	4	2	oral answer
		1	test
		1	solving situational tasks
		1	solving situational tasks
Topic 10.	4	2	oral answer
		1	test
		1	solving situational tasks
		1	solving situational tasks
Topic 11. (topic for independent study)	4	4	solving situational tasks
Topic 12. (topic for independent study)	4	4	solving situational tasks
Topic 13.	4	2	oral answer
		1	test
		1	solving situational tasks
		1	solving situational tasks
Topic 14.	4	2	oral answer
		1	test
		1	solving situational tasks
		1	solving situational tasks
Topic 15. (topic for independent study)	4	4	solving situational tasks
Total points for content module 1:		60	
Total points for the module:		60	

Instead of performing types of work on any topic of the educational component, the following types of work of an applicant of higher education may be counted:

- participation in workshops, forums, conferences, seminars, webinars on the topic of the educational component (with the preparation of essays, abstracts of reports, information messages, etc., which is confirmed by the program of the event, or abstracts of reports, or a corresponding certificate);
- participation in research and applied research on the topic of the educational component (in the development of questionnaires, conducting experimental studies, processing research results, preparing a report, presenting results, etc., which is confirmed by the demonstration of relevant materials).

Evaluation of winners by types of work during classes:

<i>Types of work, for which the acquirer receives points</i>	<i>Maximum number of points</i>
answers to theoretical questions	20
solving situational tasks	30
testing	10
Total points:	60

Evaluation during control of content modules:

<i>Types of work, for which the acquirer receives points</i>	<i>Distribution of the maximum number of points for control of the content module by types of works</i>	<i>The maximum number of points for control of the content module</i>
Content module 1		
Testing	20	40
answers to theoretical questions	20	
Total points for control of content modules:		40

Evaluation of independent work of the applicant of higher education:

during the current control: 5 points: 5 points - writing a presentation (topic 1)

during content module 1 control: tickets for content module 1 include theoretical questions and test tasks from topic 1

during content module 2 control: tickets for content module 2 include theoretical questions and test tasks from topic 2

Evaluation scale of the semester credit:

When studying the educational component, several assessment scales are used: a 100-point scale, an undifferentiated ("passed", "not passed") two-point scale and the ECTS rating scale. The results are converted from one scale to another according to the table.

Total points on a 100-point scale	ECTS scale	Evaluation on a non-differentiated scale
90-100	A	counted
82-89	B	
74-81	C	
64-73	D	
60-63	E	
35-59	FX	not counted
1-34	F	

15. Academic policies of the educational component:

Academic Integrity Policy. It is based on the principles of academic integrity stated in the POL "On measures to prevent cases of academic plagiarism at the National University of Pharmacy". Writing off when assessing the success of an applicant of higher education during control measures in practical (seminar, laboratory) classes, control of content modules and semester exams is prohibited (including using mobile devices). Abstracts must have correct text references to the used literature. The detection of signs of academic dishonesty in the applicant of higher education written work is a reason for the teacher not to enroll it.

Class attendance policy. An applicant of higher education is obliged to attend classes (POL "On the organization of the educational process of the National University of Pharmacy") according to the schedule (<https://nuph.edu.ua/rozklad-zanyat/>), to observe ethical norms of behavior.

Policy regarding deadlines, working out, rating increase, liquidation of academic debt. Completion of missed classes by applicants of higher education is carried out in accordance with the POL "Regulations on the completion of missed classes by applicants of higher education and the procedure for the elimination of academic differences in the curricula of the National University of Pharmacy" in accordance with the timetable for making up missed classes established at the department. Increasing the rating and liquidating academic debt from the educational component is carried out by the applicants of higher education of education in accordance with the procedure specified in the POL "On the procedure for evaluating the results of training of applicants of higher education at the National University of Pharmacy". Applicants of higher education are obliged to comply with all deadlines set by the department for the completion of types of written works from the educational component. Works that are submitted in violation of deadlines without valid reasons are evaluated for a lower grade - up to 20% of the maximum number of points for this type of work.

Policy on appeals of assessment from the educational component (appeals). Applicants of higher education have the right to contest (appeal) the evaluation of the educational component obtained during control measures. The appeal is carried out in accordance with the POL "Regulations on appealing the results of the semester control of the knowledge of applicants of higher education at the National University of Pharmacy".

Policy on recognition of learning outcomes obtained through non-formal and/or informal education by higher education applicants of higher education. Applicants of higher education have the right to recognition of learning results acquired in informal and informal education in accordance with the POL "On the procedure for recognition of learning results obtained through informal and/or informal education by applicants of higher education at the National University of Pharmacy".

As part of the academic freedom of the teacher, instead of performing types of work on the subject of the educational component, it is possible to enroll in the non-formal education of applicants of higher education.

16. Informational and educational and methodological support of the educational component:

Mandatory literature	<ol style="list-style-type: none"> 1. Pharmacology-Cito! Textbook / Edited dy S.M. Drogozov. – Kharkiv: 2012. – 192 p. 2. Pharmacology at your palms: reference book / Drogozov S.M., Kutsenko T.A. – Kharkiv: NphaU, 2010. – 80 p. 3. Pharmacology : summary of lectures on spesial pharmacology (part I) / S.M. Drogozov, T.A. Kutsenko. – Kharkiv: NPhaU, 2009. – 72 p. 4. Pharmacology : summary of lectures on spesial pharmacology (part II) / S.M. Drogozov, T.A. Kutsenko, A.Yu. Pozdnyakova et al. – Kharkiv: NUPh: Golden Pages, 2012. – 80 p.
Additional literature for in-depth study of the educational component	<ol style="list-style-type: none"> 1. Toxicology : Summary of lectures, practice and tests on toxicology / S.M. Drogozov, T.A. Kutsenko, A.Yu. Pozdnyakova, V.A. Ulanova. – Kharkiv: NUPh: Golden Pages, 2011. – 88 p. 2. Katzung B.G. Basic and Clinical Pharmacology, 9th edition. – New-York: Lange, 2004. – 1202 p. 3. Lippicott`s. Illustrated Reviews: Pharmacology, 4th Edition / Ed.: R. Finkel, M.A. Clark, L.X. Cubeddu. – Lippicott Williams Wilkins, 2008. – 560 p. 4. Rang H.P., Dale M.M., Ritter J.M., Moore P.K. Rang`s and Dale`s Pharmacology, 6th edition. – London: ChurchillLivingstone Elsevier, 2007. – 830 p.
Actual electronic information resources (magazines, sites, etc.) for in-depth study of the educational component	<ol style="list-style-type: none"> 1. Internet resources: <ul style="list-style-type: none"> - State service of Ukraine for medicinal products // http://dls.gov.ua - Journal of pharmacology and pharmacotherapy // www.jpharmacol.com - Journal ScienceRise: Pharmaceutical Science // http://journals.urau.ua/sr_pharm/about - Journal of medical affairs // http://liksprava.com/index.php/journal 2. Open access databases (https://lib.nuph.edu.ua/newscategory/bazi-danikh/). 3. Databases Scopus (Elsevier); Web of Science (Clarivate analytics); ScienceDirect; Hinari, AGORA, ARDI, GOALI, OARE на платформі Research; Life; 4. Library of NPHU // http://nuph.edu.ua/ru/nauchnayabiblioteka; E-mail: library@nuph.edu.ua 5. Website of the Department of Pharmacology and Pharmacotherapy NPHU // http://pharmacolpharmacother.nuph.edu.ua; Email: pharmacolpharmacother@nuph.edu.ua
Moodle distance learning system	https://pharmel.kharkiv.edu/moodle/course/view.php?id=3804

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

Technical support – computer, video camera, multimedia projector, screen.

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