
**SYLLABUS OF THE EDUCATIONAL COMPONENT
SIDE EFFECTS OF DRUGS**

for applicants for higher education of IV year of study full form of education (4.10 year of study)

of educational program «_Pharmacy_»

in specialty «_226 Pharmacy, industrial Pharmacy_»

field of knowledge «_22 Public Health_»

training for _second master_level_

TEACHERS



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4. Information about teachers:

Shchokina Katherine

Doctor of Pharmacy, Professor, Department of Pharmacology and Pharmacotherapy, National University of Pharmacy. Experience of scientific-pedagogical activity - 20 years. Reads courses: «Фармакологія», «Pharmacology», "Clinical pharmacy with pharmaceutical care". Research interests: NSAIDs, prostatoprotectors, immunocorrectors.

Kononenko Anna

PhD in pharmacology, Assistant Professor, Department of Pharmacology and Pharmacotherapy, National University of Pharmacy. Experience of scientific and pedagogical activity - 10 years. Gives courses: "Pharmacology", "Clinical pharmacy with pharmaceutical care", "Side effects of drugs". Research interests: correction of inflammatory diseases and pain, hepatoprotectors, chronopharmacology.

Stepanova Svitlana

PhD in pharmacology, Assistant Professor, Department of Pharmacology and Pharmacotherapy, National University of Pharmacy. Experience of scientific and pedagogical activity - 26 years. Reads courses: "Pharmacology", "Pharmacology and medical prescription". Scientific interests: search, research and standardization of medicinal plants of the leguminous, celery, rough-leaved, purslane families and development of hepatoprotective, nephroprotective, hypouricemic drugs and dietary supplements based on them.

Kutsenko Tetyana

PhD in pharmacology, Assistant Professor, Department of Pharmacology and Pharmacotherapy, National University of Pharmacy. More than 18 years of scientific and pedagogical experience. Reads courses: "Pharmacology", "Pharmacology of biotechnological drugs", "Fundamentals of medical-biological and pharmacological knowledge". Scientific interests: anti-ulcer agents, antioxidants, phytopreparations.

5. Consultations are ongoing at the Department of Pharmacology and Pharmacotherapy by agreement with the teacher.

6. Brief summary of the educational component: Side effects of drugs is a discipline for the second (master's) level in the specialty 226 Pharmacy, industrial Pharmacy, educational program "Pharmacy" (Language of instructions – English). Semester supervision is carried out in the form of a semester credit.

7. 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.

8. 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.

9. 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.

10. Status of the educational component: selective

11. 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.

12. 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.

13. Organization of training:

The format of teaching the educational component: lectures, practical classes for a better understanding of the topics.

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.

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 anti-allergic medicines.

Topic 5. The side effects of drugs affecting efferent innervation.

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.

Content module 2. Side effects of drugs affecting the work of organs and systems. Side effects of chemotherapeutic agents.

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.

14. Forms and types of academic achievements supervision:

Progress supervision: the types of control are listed (oral survey, writing test tasks, solving situational (calculation) problems, etc.)

Supervision of content modules: the types of tests are listed (oral survey, preparation of test tasks, solution of situational (calculation) problems, etc.)

Semester control form: semester credit

Conditions for admission to the supervision of content modules: For example, for admission to the supervision of content module 1, it is necessary to have a minimum number of points for the topics (classes) of content module 1.

Conditions for admission to semester supervision: For example, a current rating of more than 60 points, absence of missed laboratory, practical and seminar classes, fulfillment of all requirements stipulated in the work program of the educational component.

15. Evaluation system of the educational component: For example, the results of the semester supervision in the form of a semester credit are evaluated on a 100-point, non-differentiated scale ("passed", "failed") and on the ECTS scale.

Points from the educational component are calculated according to this ratio:

Types of evaluation	Maximum number of points (% of the number of points per module - for content modules)
Module 1	
Content module 1: General side effects of drugs. The pharmacotherapy complications in different age-specific groups. Side effects of drugs affecting the nervous system	50 (50 %)
- evaluation of topics (1-7): work in classes (oral survey, writing test tasks, solving situational (calculation) problems);	30 (30 %)
- supervision of content module 1 (writing test tasks, solving situational (calculation) tasks).	20 (20 %)
Content module 2. Side effects of drugs affecting the	

work of organs and systems. Side effects of chemotherapeutic agents.	50 (50 %)
- evaluation of topics (8-15): work in classes (oral survey, writing test tasks, solving situational (calculation) problems);	30 (30 %)
- supervision of content module 1 (writing test tasks, solving situational (calculation) tasks).	20 (20 %)
Semester Supervision of Module 1	100 (100 %)

The individual work of applicants for higher education is evaluated during the progress supervision and during the content module supervision

16. Academic policies of the educational component: 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". Cheating during the evaluation of an applicant for higher education during supervision activities in practical (seminar, laboratory) classes, supervision of content modules and the semester exam is prohibited (including the use of mobile devices). Abstracts must have correct text references to the used literature. The detection of signs of academic dishonesty in the student's written work is a reason for the teacher not to credit it. Class attendance policy. An applicant for 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 debts. The completion of missed classes by an applicant for higher education is carried out in accordance with the POL "Regulations on the completion of missed classes by applicants and the procedure for eliminating academic differences in the curricula of the National University of Pharmacy" in accordance with the schedule for working out missed classes established by the department. Increasing the rating and liquidating academic debts from the educational component is carried out by the applicants in accordance with the procedure specified in the POL "On the procedure for evaluating the results of training of applicants for 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 written works from the educational component. Works that are submitted late without valid reasons are assessed at a lower grade - up to 20% of the maximum number of points for this type of work. Policy on appeals of evaluation of the educational component (appeals). Applicants for 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 final supervision of knowledge by applicants of higher education at the National University of Pharmacy".

17. Information and educational and methodical support of the discipline:

The main reading suggestions	<ol style="list-style-type: none"> 1. Pharmacology-Cito! Textbook / Edited dy S.M. Drogovoz. – Kharkiv: 2012. – 192 p. 2. Pharmacology at your palms: reference book / Drogovoz S.M., Kutsenko T.A. – Kharkiv: NphaU, 2010. – 80 p. 3. Pharmacology : summary of lectures on spesial pharmacology (part I) / S.M. Drogovoz, T.A. Kutsenko. – Kharkiv: NPhaU, 2009. – 72 p. 4. Pharmacology : summary of lectures on spesial pharmacology (part II) / S.M. Drogovoz, T.A. Kutsenko, A.Yu. Pozdnyakova et al. – Kharkiv: NUPh: Golden Pages, 2012. – 80 p.
Supplementary reading suggestions 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. Drogovoz, 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.
Current electronic information resources (magazines, websites) 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 //

	<p>https://likSprava.com/index.php/journal</p> <p>2. Open access databases (https://lib.nuph.edu.ua/newscategory/bazidanikh/).</p> <p>3. Databases Scopus (Elsevier); Web of Science (Clarivate analytics); ScienceDirect; Hinari, AGORA, ARDI, GOALI, OARE на платформі Research; Life;</p> <p>4. Library of NPHU // http://nuph.edu.ua/ru/nauchnayabiblioteka; E-mail: library@nuph.edu.ua</p> <p>5. Website of the Department of Pharmacology and Pharmacotherapy NPHU // http:// pharmacolpharmacother.nuph.edu.ua; Email: pharmacolpharmacother@nuph.edu.ua</p>
Moodle distance learning system	https://pharmel.kharkiv.edu/moodle/course/index.php?categoryid=202

18. Technical support and software of the educational component: test computers, multimedia device, screen.