

SYLLABUS OF THE EDUCATIONAL COMPONENT

CLINICAL PHARMACY AND PHARMACEUTICAL CARE

for applicants for higher education of 4-5 years of study full form of education (4.10 year of study)
of educational program «Pharmacy»
in specialty «226 Pharmacy, Industrial Pharmacy»
in specialization _____
field of knowledge «22 Public Health»
training for Master

TEACHERS



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5. Consultations: provided online according the consultation schedule of Department of Clinical Pharmacology and Clinical Pharmacy

6. Brief summary of the educational component: *Clinical pharmacy is the integrative applied science, combining the pharmaceutical and clinical aspects of the pharmacology, the main task of which is to provide a reliable theoretical basis and methodological approaches to the rational use of medicines.*

«Clinical pharmacy and pharmaceutical care» is mandatory educational component, which provides theoretical knowledge and practical skills in the field of clinical medicine and clinical pharmacology, analysis and correction of medical therapy, selection of the most rational drug and their combinations for a particular patient, contributes to the formation of skills to apply knowledge of clinical pharmacy in professional activities during the pharmaceutical care provide

7. The purpose statement of studying the educational component: «Clinical pharmacy and pharmaceutical care» is to train pharmacists who would have a sufficient theoretical knowledge and practical skills to work with the doctor in providing the most efficient therapy for a particular patient, as well as the pharmaceutical care of patients in the pharmacy.

The subject of educational component study is the principles of rational use of drugs, ways of prevention of adverse drug reactions, approaches to pharmaceutical care.

8. Competences in accordance with the educational program:**Soft- skills / General competences (CG):**

GC 6. Knowledge and understanding of the subject area and understanding of the profession activity.

GC 7. Ability to adapt and act in a new situation.

Hard-skills / Professional (special) competences (PC):

PC 1. Ability to conduct sanitary and educational work among the population to prevent common diseases, prevent dangerous infectious, viral and parasitic diseases, as well as to facilitate the timely detection and maintenance of adherence to treatment of these diseases in accordance with their medical and biological characteristics and microbiological characteristics.

PC 2. Ability to provide medical advice on prescription and over-the-counter medications and other products of the pharmacy range; pharmaceutical care during the selection and sale of the over-the-counter medications by assessing the risk/benefit, compatibility, indications and contraindications based on data on the health of a particular patient, taking into account biopharmaceutical, pharmacokinetic, pharmacodynamic and physical and chemical characteristics of the medicine and other pharmaceutical product.

PC 4. Ability to ensure the rational use of prescription and over-the-counter medications and other pharmaceutical products in accordance with physical, chemical and pharmacological characteristics, biochemical, pathophysiological features of a particular disease and pharmacotherapeutic regimens of its treatment.

PC 5. Ability to monitor the effectiveness and safety of the population of medications according

to the data on their clinical and pharmaceutical characteristics, as well as taking into account subjective signs and objective clinical, laboratory and instrumental criteria for the examination of a patient.

PC 13. Ability to demonstrate and apply in practice communication skills, fundamental principles of pharmaceutical ethics and deontology, based on moral obligations and values, ethical standards of professional behavior and responsibility in accordance with the Code of Ethics for Pharmaceutical Workers of Ukraine and WHO guidelines.

9. The program learning outcomes: (PLO):

PLO 4. To demonstrate the ability to independently search, analyze and synthesize information from various sources and use these results to solve typical and complex specialized tasks of professional activity.

PLO 5. To position own professional activities and personal qualities in the pharmaceutical labor market; to formulate the purposes of own activity taking into account public and industrial interests.

PLO 6. To argue information for decision-making, to be responsible for it in standard and non-standard professional situations; to adhere to the principles of deontology and ethics in professional activities.

PLO 7. To perform professional activities using creative methods and approaches.

PLO 9. To carry out professional activities using information technology, “Information Databases”, navigation systems, Internet resources, software and other information and communication technologies.

PLO 10. To adhere to the norms of communication in professional interaction with colleagues, management, consumers, work effectively in a team.

PLO 13. To carry out sanitary and educational work in professional activity in case of outbreaks of infectious, viral and parasitic diseases.

PLO 14. To determine the advantages and disadvantages of medications of different pharmacological groups, taking into account their chemical, physical and chemical, biopharmaceutical, pharmacokinetic and pharmacodynamic features. To recommend to consumers over-the-counter medications and other products of the pharmaceutical range with the provision of counselling and pharmaceutical care.

PLO 17. To use the clinical, laboratory and instrumental research data to monitor the efficacy and safety of medicines.

PLO 25. To promote health, including disease prevention, rational appointment and use of medicines. To perform professional duties in good faith, comply with the law on the promotion and advertising of medicines. To have psychological communication skills to build trust and understanding with colleagues, doctors, patients, consumers.

10. Status of the educational component: compulsory.

11. Prerequisites of the educational component: The educational component «Clinical Pharmacy and Pharmaceutical Care» is based on the study of biology and genetics fundamentals, normal physiology and human anatomy, microbiology with immunology fundamentals, pathological physiology, biological chemistry, pharmacology, laboratory diagnostics, pharmacotherapy with pharmacokinetics, as well as a unit of chemical courses and medicine technology and integrates with these components.

12. The volume of the educational component: 9 ECTS credits, 270 hours per educational component: general - 270, lectures - 32, practical classes - 116, individual work – 122 hours.

13. Organization of training:**The format of teaching the educational component****Content of the educational component:**

Content module 1. *Basic principles of clinical pharmacy and clinical pharmacology.*

Clinical pharmacy in pulmonology, rheumatology, cardiology, hematology

Topic 1. *Basic principles of clinical pharmacy and clinical pharmacology. Adverse drug reactions. Principles of Good Clinical Practice*

Topic 2. *Clinical pharmacy in pulmonology*

Topic 3. *Clinical pharmacy in rheumatology*

Topic 4. *Clinical pharmacy in cardiology*

Topic 5. *Clinical pharmacy in hematology*

Content module 2. *Clinical pharmacy in nephrology, gastroenterology, hepatology, endocrinology, allergy*

Topic 6. *Clinical pharmacy in nephrology*

Topic 6. *Clinical pharmacy in gastroenterology*

Topic 7. *Clinical pharmacy in hepatology*

Topic 9. *Clinical pharmacy in endocrinology*

Topic 10. *Clinical pharmacy in allergy*

SEMESTER CREDIT

Content module 3. *Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of different disorders of well-being II*

Topic 11. *Basic principles of pharmaceutical care*

Topic 12. *Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of indigestion*

Topic 13. *Pharmaceutical care during OTC drugs dispensing for symptomatic treatment and prevention of cold*

Topic 14. *Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of joint and muscle pain*

Topic 15. *Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of headache*

Content module 4. *Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of different disorders of well-being II*

Topic 16. *Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of disorders of the nervous system activity*

Topic 17. *Pharmaceutical care during OTC drugs dispensing for symptomatic treatment of skin lesions*

Topic 18. *Pharmaceutical care during OTC drugs dispensing for preventive and therapeutic using of anthelmintics. Pharmaceutical care of patients with local disorders of blood circulation*

Topic 19. *Pharmaceutical care during OTC drugs dispensing for elimination and prevention of vitamin deficiency*

Topic 20. *Pharmaceutical care during OTC drugs dispensing for special groups of patients. Interaction of drugs with food and alcohol*

SEMESTER CREDIT**SEMESTER EXAM****14. Forms and types of academic achievements supervision:*****Forms and types of academic achievements supervision***

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

Supervision of content modules: preparation of test tasks, solution of situational problems, oral survey, etc.

Semester exam: answers to theoretical questions, solving situational problems/

Semester control form: semester credit, semester exam.

Conditions for admission to the supervision of content modules: For admission to the supervision of content module 2, it is necessary to have a minimum number of points for the topics (classes) of content module 1, for the supervision of content module 1

Conditions for admission to semester supervision: A current rating is more than 60 points, absence of missed practical classes, fulfillment of all requirements stipulated in the work program of the educational component.

15. Evaluation system of the educational component:

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.

The results of semester supervision in the form of a semester exam are evaluated according to the ECTS scale, a 100-point scale and a four-point scale ("excellent", "good", "satisfactory", "unsatisfactory").

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: - evaluation of topics (1-5) (work in classes 1-5): work in classes (oral survey, writing test tasks, solving situational problems); - supervision of content module 1 (writing test tasks, solving situational tasks, oral survey)	30 (30%) 20 (20%)
Content module 2: - evaluation of topics (6-10) (work in classes 6-10): work in classes (oral survey, writing test tasks, solving situational problems); - supervision of content module 2 (writing test tasks, solving situational tasks, oral survey)	30 (30%) 20 (20%)
Semester Supervision of Module 1	100
Module 2	
Content module 3: - evaluation of topics (11-15) (work in classes 11-15): work in classes (oral survey, writing test tasks, solving situational problems); - supervision of content module 3 (writing test tasks, solving situational tasks, oral survey)	30 (30%) 20 (20%)
Content module 4: - evaluation of topics (16-20) (work in classes 16-20): work in classes (oral survey, writing test tasks, solving situational problems); - supervision of content module 4 (writing test tasks, solving situational tasks, oral survey)	30 (30%) 20 (20%)
Semester Supervision of Module 2	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:

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". 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:

<p>The main reading suggestions</p>	<ol style="list-style-type: none"> 1) Fundamentals of clinical medicine: symptoms and syndromes in the pharmacy practice : manual / I. A. Zupanets, S. B. Popov, Yu. S. Rudyk et al. ; ed. by V. P. Chernykh, V. M. Lesovoy, I. A. Zupanets. – Kharkiv : Golden Pages, 2012. – 94 p. 2) Clinical Pharmacy (educational and methodological manual): manual for student of higher schools / I. A. Zupanets, I. S. Chekman, S. B. Popov et al., edited by I. A. Zupanets, I. S. Chekman. – Kharkiv : NUPh : Golden Pages, 2010. – 184 p. 3) Clinical Pharmacy: KROK-2 training [Electronic resource] : manual / K. O. Zupanets [et al.], 2021. - 48 c. 4) Report on the Work Pharmaceutical Placement in Clinical Pharmacy and Pharmaceutical Care [Electronic resource] : workbook / S. V. Misiurova [et al.], 2023. - 48 c. 5) Pharmaceutical care: basic concepts and definitions [Текст] : methodological recommendation for in-class work of students / S. B. Popov [et al.] ; ed. by prof. I. A. Zupanets, 2020. - 24 p. 6) Pharmaceutical care when dispensing drugs for the symptomatic treatment of the CNS episodic disorders (anxiety, insomnia) [Текст] : methodological recommendation for in-class work of students / T. S. Sakharova [et al.] ; ed. by prof. I. A. Zupanets, 2020. - 36 p. 7) Practical training in clinical pharmacy [Electronic resource] : methodological recommendations / K. O. Zupanets [et al.] ; ed. by prof. I. A. Zupanets, 2020. - 28 p. 8) Introduction in Clinical Pharmacy: Basic Definitions and Principles [Текст] : methodological recommendations for in-class work of students / N. P. Bezugla [et al.] ; ed. by I. A. Zupanets ; translated by O. S. Popov, 2018. - 32 p.
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	<p>9) Introduction in Clinical Pharmacy: Adverse Drug Reactions [Текст] : methodological recommendations for in-class work of students / I. A. Otrishko [et al.] ; ed. by I. A. Zupanets ; translated by O. S. Popov, 2018. - 31 p.</p> <p>10) Clinical pharmacy in cardiology: chronic heart failure [Текст] : methodological recommendations for in-class work of students / Ye. F. Grintsov [et al.] ; ed. by I. A. Zupanets, 2017. - 31 p.</p> <p>11) Pharmaceutical care for the symptomatic treatment of headache [Текст] : methodological recommendations for in-class work of students / T. S. Sakharova [et al.] ; ed. by I. A. Zupanets, 2016. - 28 p.</p> <p>12) Clinical pharmacy in allergology [Текст] : methodological recommendations for in-class work of students / K. M. Tkachenko [et al.] ; ed. by I. A. Zupanets, 2016. - 44 p.</p> <p>13) Clinical pharmacy in hepatology [Текст] : methodological recommendations for in-class work of students / S. V. Misyurova [et al.] ; ed. by I. A. Zupanets, 2016. - 44 p.</p> <p>14) Shebeko, S. K. Clinical pharmacy in nephrology [Текст] : methodological recommendations for in-class work of students / S. K. Shebeko, T. S. Zhulay, S. M. Zimin ; ed. by I. A. Zupanets, 2016. - 56 p.</p> <p>15) Zhulay, T. S. Clinical pharmacy in gastroenterology [Текст] : methodological recommendations for in-class work of students / T. S. Zhulay, S. M. Zimin ; ed. by I. A. Zupanets, 2014. - 64 p.</p> <p>16) Clinical pharmacy in cardiology. Essential arterial hypertension. Symptomatic arterial hypertensions. Antihypertensive drugs [Текст] : methodological recommendations for in-class work of students / Ye. F. Grintsov [et al.] ; ed. by I. A. Zupanets, 2014. - 56 p.</p> <p>17) Clinical pharmacy [Текст] : methodological recommendations to practice for students / O. V. Gerasymenko [et al.] ; ed. by I. A. Zupanets, 2014. - 19 p.</p> <p>18) Propisnova, V. V. Clinical pharmacy in pulmonology [Текст] : methodical recommendations for classroom work of students of speciality 7.12020101 "Pharmacy" and 7.12020104 "Technology of perfumery and cosmetics" of pharmaceutical higher schools and pharmaceutical faculties of medical higher schools of the III - IV th accreditation levels / V. V. Propisnova, K. O. Zupanets ; editor I. A. Zupanets, 2013. - 64 c.</p>
<p>Supplementary reading suggestions for in-depth study of the educational component</p>	<p>1) <i>Applied Therapeutics : The Clinical Use Of Drugs</i> / ed. by Caroline S. Zeind, Michael G. Carvalho. – 11th ed. – New York : Wolters Kluwer ; Lippincott Williams & Wilkins, 2018. – 2379 p.</p> <p>2) <i>British Medical Association. New Guide to Medicines and Drugs.</i> – 9th ed. – London : Dorling Kindersley, 2015. – 512 p.</p> <p>3) <i>Clinical Pharmacy and Therapeutics.</i> – 6th ed. / Eds Cate Whittlesea and Karen Hodson. – London : Churchill Livingstone, 2019. – 1094 p.</p> <p>4) <i>Harrison's Principles of Internal Medicine</i> / L. J. Jameson [et al.]. – 20th ed. – McGraw Hill Professional, 2018. – 4048 p.</p> <p>5) <i>Oxford Handbook of Clinical Pharmacy Third Edition</i> / eds Ph. Wiffen. M. Mitchell, M. Snelling, N. Stoner. – Oxford : Oxford University Press, 2017. – 730p.</p> <p>6) <i>Symptoms in the Pharmacy : A Guide to the Management of Common Illness.</i> – 8th ed. / Ed. A. Blenkinsopp, M. Duerden and J. Blenkinsopp. – Oxford : John Wiley & Sons Ltd, 2018. – 405 p.</p>
<p>Current electronic information resources (magazines, websites) for in-depth study of the educational component</p>	<p>1) Drugs.com. Prescription Drug Information, Interactions and Side Effects [Electronic resource]. – Access mode: https://www.drugs.com/ (Date of access: 12.01.2023). – The name from the screen.</p> <p>2) <i>FDA Approved drug products</i> [Electronic resource] // Federal Drug Administration. – Access mode: https://www.accessdata.fda.gov/scripts/cder/daf/ (Date of access: 12.01.2023). – The name from the screen.</p> <p>3) <i>Medicines</i> [Electronic resource] // European Medicines Agency. – Access mode: https://www.ema.europa.eu/en/medicines (Date of access: 12.01.2023). –</p>

	<p>The name from the screen.</p> <p>4) <i>Orange Book: Approved Drug Products with Therapeutic Equivalence Evaluations</i> [Electronic resource]. – Access mode: https://www.accessdata.fda.gov/scripts/cder/ob/index.cfm (Date of access: 12.01.2023). – The name from the screen.</p> <p>5) <i>Rxlist</i>. The Internet Drug Index for prescription drug information, interactions and side effects [Electronic resource]. – Access mode: https://www.rxlist.com/ (Date of access: 12.01.2023). – The name from the screen.</p>
Moodle distance learning system	<p>https://pharmel.kharkiv.edu/moodle/course/view.php?id=2693 https://pharmel.kharkiv.edu/moodle/course/view.php?id=2722</p> <p>https://pharmel.kharkiv.edu/moodle/course/view.php?id=4893 https://pharmel.kharkiv.edu/moodle/course/view.php?id=4894</p> <p>https://pharmel.kharkiv.edu/moodle/course/view.php?id=24</p>

18. Material and technical support and software of the educational component: a computer, the Internet and equipment for video/audio conferences or a mobile gadget with the possibility of connecting to the Internet, OS Windows 7/10/11, Microsoft Office, Moodle, ZOOM.