NATIONAL PIROGOV MEMORIAL MEDICAL UNIVERSITY, VINNYTSYA

COURSE SYLLABUS

For the training of master's students

PRACTICE IN CLINICAL PHARMACY

Specialty	226 "Pharmacy, Industrial Pharmacy"
Educational Programme	EPP "Pharmacy" (2023); 226.01 "Pharmacy"
Higher Education Level	Second (Master's) level
Academic Year	2026–2027
Status of the Discipline	Mandatory
Language of Instruction	English
Total Workload	4.5 ECTS credits
Year of Study / Semester	Year V / Semester 10 (full-time study) Year VI / Semester 11 (part-time study)
Developer(s)	Cand. Pharm. Sc., Associate Professor A. S. Voronkina
Instructor(s), Guest Lecturers	Cand. Pharm. Sc., Associate Professor T. I. Voitenko, Cand. Pharm. Sc., Associate Professor A. S. Voronkina, Cand. Pharm. Sc., Associate Professor Yu. O. Tomashevska
Venue and Contact Details	Department of Pharmacy, 56 Pirohov St., Vinnytsia; tel. 55-39-52; pharmacy@vnmu.edu.ua

1. DESCRIPTION OF THE ACADEMIC DISCIPLINE

ABSTRACT

The subject of the practice is mastering the algorithms of responsible pharmaceutical care when dispensing medicines, counseling and information work in pharmacy healthcare establishments, work on the prevention and monitoring of possible adverse effects of medicines (pharmacovigilance), application of the principles of rational pharmacotherapy in professional activity, and developing skills of communication and ethical conduct with patients/patients' representatives.

The industrial pharmaceutical practice in the specialization "Practice in Clinical Pharmacy" is intended to consolidate and deepen the theoretical knowledge acquired by higher education students and to develop in them practical abilities and skills in applying this knowledge in a professional environment.

Prerequisites for the Educational Component. The industrial pharmaceutical practice in the specialization "Practice in Clinical Pharmacy" is based on the study of biomedical and clinical disciplines, namely: pharmacology, pharmacotherapy with pharmacokinetics, clinical pharmacy and pharmaceutical care, biopharmacy, biology with the basics of genetics, human anatomy and physiology, pathological physiology, microbiology with the basics of immunology, first aid, medical and pharmaceutical ethics and deontology, and clinical laboratory diagnostics, which precede the practice.

PURPOSE AND OBJECTIVES

The purpose of teaching the academic discipline is to consolidate in higher education students the practical skills acquired during the study of professional training disciplines and to develop the ability

to use a sufficient amount of theoretical knowledge on the rational use of medicines to provide responsible pharmaceutical care when dispensing medicinal products, pharmaceutical counseling, and pharmacovigilance.

The main objectives of studying the academic discipline "Practice in Clinical Pharmacy" are:

– mastering the requirements of the current regulatory documents on the organisation of pharmaceutical care in pharmacies and on pharmacovigilance, and applying them in practical activity;

– using in professional pharmaceutical counseling and pharmaceutical care official information and data from professional evidence-based sources on the rational use of medicines;

– developing in higher education students the skills of professional and ethical counseling of a pharmacy customer or a healthcare professional on the rational use of prescription and over-the-counter medicines, and of health education activities for disease prevention and promotion of a healthy lifestyle.

Competencies and learning outcomes to which the discipline contributes:

– integral competence:

The ability to solve tasks and to comprehend and resolve practical problems of a research and/or innovative nature in the field of pharmacy.

– general competencies (GC):

GC 02. Ability for abstract thinking, analysis, and synthesis.

GC 03. Knowledge and understanding of the subject area and understanding of the profession.

GC 04. Ability to adapt and act in a new situation. Ability to show initiative.

GC 06. Skills in the use of information and communication technologies.

GC 07. Ability to choose a communication strategy, to work in a team and with experts from other fields of knowledge/types of economic activity.

GC 08. Ability to assess and ensure the quality of the work performed.

GC 09. Ability to conduct research at an appropriate level.

– special (professional, subject-specific) competencies (SC):

SC 01. Ability to collect, interpret, and apply data necessary for professional activity, for conducting research, and for implementing innovative projects in the field of pharmacy.

SC 02. Ability to integrate knowledge and solve complex problems of pharmacy in broad or multidisciplinary contexts.

SC 03. Ability to solve pharmacy problems in new or unfamiliar environments with incomplete or limited information, taking into account aspects of social and ethical responsibility.

SC 04. Ability to use in professional activity knowledge of the legal and legislative acts of Ukraine and the recommendations of good pharmaceutical practices.

SC 05. Ability to demonstrate and apply in practical activity communication skills and the fundamental principles of pharmaceutical ethics and deontology, based on moral obligations and values, ethical norms of professional conduct and responsibility, in accordance with the Code of Ethics of Pharmaceutical Workers of Ukraine and WHO guidelines.

SC 06. Ability to communicate clearly and unambiguously one's own knowledge, conclusions, and arguments in the field of pharmacy to specialists and non-specialists, including those who are learning.

SC 09. Ability to provide counseling on prescription and over-the-counter medicines and other pharmacy products and on aspects of healthy nutrition, and to provide pharmaceutical care when selecting and dispensing medicines of natural and synthetic origin by assessing the risk/benefit ratio and compatibility, taking into account their biopharmaceutical, pharmacokinetic, pharmacodynamic, and physico-chemical and chemical characteristics, indications/contraindications for use, guided by data on the health status of the particular patient.

SC 10. Ability to monitor the efficacy and safety of the use of medicines by the population in accordance with data on their clinical and pharmaceutical characteristics.

Post-requisites for the Educational Component. The main provisions of the academic discipline are directly applicable during the internship in the specialty and also form the basis for preparation

for the licensing Unified State Qualification Examination (USQE) and the Objective Structured Practical Examination (OSPE).

2. LEARNING OUTCOMES

Upon successful completion of the academic discipline, the student will be able to:
PLO 01. To apply specialized knowledge and skills from general and professional disciplines in professional activity.
PLO 02. To critically comprehend scientific and applied problems in the field of pharmacy.
PLO 03. To assess and ensure the quality and effectiveness of activity in the field of pharmacy.
PLO 05. To plan and carry out professional activity on the basis of the legal acts of Ukraine and the recommendations of good pharmaceutical practices.
PLO 07. To demonstrate the ability to independently search for, analyze, and synthesize information from various sources, including professional literature, patents, and databases; to evaluate it, in particular using statistical analysis; and to apply these results to solve typical and complex specialized tasks of professional activity, including the development and production of medicines.
PLO 08. To develop and make effective decisions on solving complex/comprehensive pharmacy problems, individually and following collective discussion; to formulate the goals of one's own activity and of the team's activity, taking into account social and production interests, the general strategy, and the available constraints; and to determine optimal ways of achieving goals.
PLO 09. To develop and implement innovative projects in the field of pharmacy, as well as related interdisciplinary projects, taking into account technical, social, economic, ethical, legal, and environmental aspects.
PLO 12. To promote the preservation of health, in particular the prevention of diseases and the rational prescribing and use of medicines. To perform one's professional duties conscientiously and to comply with legislation on the promotion and advertising of medicines. To possess the psychological communication skills needed to achieve trust and mutual understanding with colleagues, physicians, patients, and consumers.
PLO 14. To determine the advantages and disadvantages of medicines of different pharmacological groups, taking into account their chemical, physico-chemical, biopharmaceutical, pharmacokinetic, and pharmacodynamic characteristics. To recommend over-the-counter medicines and other pharmacy products to consumers, providing counseling and pharmaceutical care.
PLO 15. To formulate, substantiate, and clearly and specifically communicate to specialists and non-specialists, including higher education students, information based on one's own knowledge and professional experience and on the main trends in the development of world pharmacy and related fields.
PLO 16. To record cases of adverse effects when using medicines of natural and synthetic origin; to assess factors that may influence the processes of absorption, distribution, deposition, metabolism, and excretion of medicines and that are determined by the condition and characteristics of the human body and by the pharmaceutical characteristics of the medicines.

3. FORMS OF ORGANISATION OF THE EDUCATIONAL PROCESS AND THEIR SCOPE

Type of Learning Activity	**Hours**	
	Full-time study	**Part-time study**
Lectures:	–	–
Practical Training:	60	–

Independent Study (IS):	75	135
Total	**135**	**135**

4. THEMATIC PLAN

№	Topic
1	Clinical pharmacy in the pharmacist's practice. Basic principles of pharmaceutical care. Professional communication skills of the pharmacist. Principles of ethical interaction between the pharmacist and the pharmacy customer.
2	Clinical pharmacy and pharmaceutical care when dispensing prescription and over-the-counter medicines. Pharmaceutical counseling. Practices of responsible self-medication. Pharmaceutical care when dispensing medicines on electronic prescriptions and under the reimbursement programme.
3	Pharmacist protocols "Symptomatic Treatment of Allergy", "Symptomatic Treatment of Sore Throat", "Symptomatic Treatment of Cough", "Symptomatic Treatment of Rhinitis", "Prevention of Influenza and Acute Respiratory Viral Infections".
4	Pharmacist protocols "Symptomatic Treatment of Diarrhoea", "Symptomatic Treatment of Constipation", "Symptomatic Treatment of Heartburn", "Symptomatic Treatment of Pancreatic Enzyme Insufficiency", "Symptomatic Treatment of Dysfunction of the Gallbladder and Biliary Tract".
5	Pharmacist protocols "Symptomatic Treatment of Burns", "Symptomatic Treatment of Superficial Wounds", "Symptomatic Treatment of Superficial Closed Injuries", "Symptomatic Treatment of Muscle and Back Pain".
6	Pharmacist protocols "Symptomatic Treatment of Stress", "Symptomatic Treatment of Insomnia", "Symptomatic Treatment of Headache".
7	Pharmacist protocols "Promoting Smoking Cessation" and "Prevention of Disease and Promoting Adherence to Treatment in Tuberculosis".
8	Pharmacist protocols "Symptomatic Treatment of Herpetic Lesions of the Lips", "Symptomatic Treatment of Scabies", "Symptomatic Treatment of Pediculosis", "Prevention and Symptomatic Treatment of Acne".
9	Pharmacist protocol "Symptomatic Treatment of Elevated Body Temperature in Children Under 15 Years of Age"; pharmacist protocol for dispensing over-the-counter medicines "Symptomatic Treatment of Elevated Body Temperature in Children from 15 Years of Age and in Adults"; "Symptomatic Treatment of Toothache".
10	Pharmacovigilance. Pharmacist protocol on receiving information about cases of adverse reactions and/or lack of efficacy of medicinal products. Completing the form for reporting an adverse reaction to a medicinal product.
11	Final assessment: graded pass.

5. FORMS AND METHODS OF ASSESSMENT OF LEARNING OUTCOMES

Ongoing Assessment during Practical Classes	Methods: oral and/or written assessment and testing, computer-based assessment and testing, completion of situational tasks.
Final Assessment of the Academic Discipline – **Graded Pass**	It is conducted during the final practical class and is assessed in accordance with the Regulations on the Organisation of the Educational Process at National Pirohov Memorial Medical University, Vinnytsia:General Information / Key Documents https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf)

Assessment Tools for Learning Achievement	Theoretical questions, tests, clinically oriented situational tasks, practical assignments, demonstration of practical skills.

6. ASSESSMENT CRITERIA

Assessment of students' knowledge is carried out in accordance with the current Regulations on the Organisation of the Educational Process at National Pirohov Memorial Medical University, Vinnytsia**.**

(https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf)

Type of Assessment	Assessment Criteria / Scale
Ongoing Assessment	According to the traditional grading scale: 5 – "Excellent", 4 – "Good", 3 – "Satisfactory", 2 – "Unsatisfactory"
Interim Assessments	According to the traditional grading scale
Assessment of Practical Skills	According to the traditional grading scale
Final Assessment of the Academic Discipline	Graded pass grade: 71–80 points – "Excellent"; 61–70 points – "Good"; 50–60 points – "Satisfactory"; fewer than 50 points – "Unsatisfactory" / Failed.
Overall Assessment for the Academic Discipline	Ongoing academic performance – 72–120 points (conversion of the average traditional grade for practical classes to the 120-point scale): 60% of the final grade for the academic discipline. Final Assessment – 50–80 points: 40% of the final grade for the academic discipline. Individual Assignments– 1–12 points. Total: 122–200 points.

GRADING SCALE: NATIONAL AND ECTS

Total Score for All Learning Activities	**ECTS Grade**	**National Grade: Examination, Course Project (Paper), Practical Training**	**National Grade: Pass**
180–200	**A**	Excellent	Passed
170–179.99	**B**	Good	Passed
160–169.99	**C**	Good	Passed
141–159.99	**D**	Satisfactory	Passed
122–140.99	**E**	Satisfactory	Passed
60–121.99	**FX**	Unsatisfactory, with the possibility of retaking	Failed, with the possibility of retaking
0–59.99	**F**	Unsatisfactory, with mandatory repetition of the discipline	Failed, with mandatory repetition of the discipline

Criteria for Assessing Students' Knowledge

Assessment of Oral/Written Responses during Ongoing Assessment

The grade "Excellent" is awarded when a student demonstrates comprehensive knowledge of the topic, illustrating responses with a variety of relevant examples; provides complete, accurate, and clear answers without prompting or leading questions; presents the material without errors or inaccuracies; confidently solves problems and completes practical tasks of varying levels of complexity; and independently generates innovative ideas.

The grade "Good" is awarded when a student demonstrates good knowledge and understanding of the topic and provides correct, coherent, and well-structured answers, although they may not be fully comprehensive. The student answers additional questions correctly and without significant errors; successfully solves problems and completes practical tasks, experiencing difficulties only with the most complex assignments.

The grade "Satisfactory" is awarded when a student demonstrates knowledge of the overall content of the topic and a satisfactory level of understanding. With the help of guiding questions, the student is able to solve modified (simplified) problems; solves problems and completes practical tasks, although experiencing difficulties even with relatively simple assignments; is unable to formulate a coherent and systematic response independently but provides correct answers to direct questions.

The grade "Unsatisfactory" is awarded when a student's knowledge and skills do not meet the requirements for the grade "Satisfactory".

The assessment criteria for all other types of students' academic work are based on the requirements of the Regulations on the Organisation of the Educational Process at National Pirohov Memorial Medical University, Vinnytsia,

(https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf) and are specified in the programme of the academic discipline.

Assessment of Students' Independent Study

Students' independent study undertaken as part of a topic alongside contact hours is assessed as part of the ongoing assessment of that topic during the relevant practical class.

The maximum number of points a student may receive upon completion of the discipline is 200 points. The minimum passing score is 122 points.

7. METHODOLOGICAL SUPPORT

Teaching and learning materials (lecture notes or extended lecture outlines), thematic plans for lectures, practical classes and independent study, assignments for ongoing assessment, methodological guidelines, and teaching manuals.

8. ACADEMIC DISCIPLINE POLICIES

The completion of learning activities and all academic work within the discipline must comply with the requirements of the Regulations on the Organisation of the Educational Process at National Pirohov Memorial Medical University, Vinnytsia**;** (https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf), the Regulations on the Organisation of the Educational Process for Higher Education Students Pursuing the Degree of Doctor of Philosophy at National Pirohov Memorial Medical University, Vinnytsia (https://www.vnmu.edu.ua/downloads/other/pologPhD_org.pdf),; the Law of Ukraine "On Education" (Article 42**)**; the Law of Ukraine "On Academic Integrity**"**; and the Code of Academic Integrity of National Pirohov Memorial Medical University, Vinnytsia (https://www.vnmu.edu.ua/downloads/other/kodex_akad_dobr_edit%202026.pdf)

Students are entitled to high-quality educational services and a safe learning environment under martial law, emergency situations and states of emergency; access to up-to-date scientific and educational information; and qualified academic guidance and support in studying the discipline and acquiring practical skills.

The Department's policy on the provision of educational services is student-centred and is based on the regulatory documents of the Ministry of Education and Science of Ukraine and the Ministry of Health of Ukraine, the University Statute, the procedures governing the provision of educational services, including in emergency situations, as stipulated by the principal regulations and administrative directives governing the organisation of the educational process at National Pirohov Memorial Medical University, Vinnytsia, as well as on the principles of academic integrity.

Academic Integrity. When studying the discipline and completing all types of learning assignments and/or research activities, students must comply with the Law of Ukraine "On Education" (Article 42)**,** th**e** Law of Ukraine "On Academic Integrity"**,** and the Code of Academic Integrity of National Pirohov Memorial Medical University, Vinnytsia (University website → General Information → Key Documents → Code of Academic Integrity). In the event of a violation of academic integrity principles, appropriate measures shall be taken in accordance with the applicable regulatory documents.

Compliance with VNMU Internal Regulations and Safety Requirements during Practical Classes. At the first practical class, the instructor provides a safety briefing on appropriate conduct on the Department premises, informs students of the location of the shelter and the evacuation route to the shelter in accordance with the approved evacuation plan, explains the rules of conduct while proceeding to and remaining in the shelter, and provides instructions on all actions stipulated by the Emergency Response Plan (pursuant to Order No. 505 dated 30 August 2023). In the event of an air raid alert or any other emergency warning signal, the instructor suspends the class. The instructor and students proceed together to the shelter and remain there until the warning signal is cancelled. Once the alert has been lifted, the instructor and students either resume the class in the Department's classrooms or students independently complete the remaining learning material, which is subsequently assessed at the next class.

Requirements for Preparation for Practical Classes

Students are required to participate actively in the educational process: attend classes and come adequately prepared; complete the test tasks related to the current topic in their workbooks and fill in the required diagrams and tables; actively participate in discussions of the class topic; complete all assignments specified in the programme; search for additional information relevant to the topic and present it to their peers.

Students are expected to arrive at classes on time. Late arrival is not permitted in accordance with the Internal Regulations for Students of VNMU**.** A student who arrives more than 10 minutes late is not admitted to the class and is required to make up the missed class in accordance with the established procedure.

For specialties within Field of Study I "Healthcare and Social Security", students are required to wear a medical coat during practical classes. Students who fail to comply with this requirement are not admitted to the class.

Students are expected to be polite, courteous, and respectful in their interactions with teaching staff, other University employees, fellow students, and other persons studying at VNMU. Students must maintain a quiet and orderly environment and demonstrate appropriate conduct on the Department premises.

In its activities, the Department adheres to the principles of mutual respect and tolerance. Students are expected to uphold the same principles.

Students must comply with safety regulations while on the Department premises.

When working in teaching and research laboratories, students must comply with the applicable safety regulations (published on the website of the **Department of Pharmacy**). When completing practical assignments, students must keep their workstations clean and orderly and leave them tidy upon completion of the practical work.

While at clinical training sites, students are required to comply with the established therapeutic and protective regime and sanitary and hygiene requirements**.** Where quarantine restrictions are introduced at a healthcare institution, strict compliance with all applicable requirements is mandatory.

When entering inpatient departments, students must wear a medical coat, cap, and change of footwear**.** Students must also have a medical mask, gloves, and hand sanitiser with them. Bringing outdoor clothing, outdoor footwear, or bulky personal belongings into inpatient departments is not permitted. Students are strictly prohibited from handling any medical devices, equipment, or instruments without the instructor's permission.

When communicating with patients and their relatives, as well as outside the healthcare institution, students are required to observe ethical and deontological principles and comply with applicable legislation concerning the confidentiality and protection of information. The disclosure or dissemination of patients' medical or personal information by any means, including through social media, verbal communication, or otherwise, is strictly prohibited.

In interactions with healthcare personnel and during discussions as part of the educational process, students are expected to adhere to the principles of tolerance, courtesy, and mutual respect. Inappropriate, disrespectful, or provocative behaviour is not permitted.

Use of Mobile Phones and Other Electronic Devices. The use of mobile phones and other electronic devices during classes is not permitted, except for emergency calls or when such devices are used to present supplementary materials relevant to the topic of the class.

Absence from Classes. Missed classes must be made up in accordance with the procedure established by the current Regulations on the Organization of the Educational Process at National Pirohov Memorial Medical University, Vinnytsia https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf), at the times specified in the make-up schedule published on the website of the **Department of Pharmacy** (VNMU website), either with the instructor on duty or with the student's regular instructor. Making up a missed class involves completing the assignments related to the topic of the missed class in accordance with the specific requirements of the discipline.

Mastery of lecture topics is assessed during practical classes, seminars (including the assessment of practical skills), and final assessment, in accordance with the Regulations on the Organisation of the Educational Process at National Pirohov Memorial Medical University, Vinnytsia (https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf)

Admission to Final Assessment. The procedure for admission to final assessment in the discipline is set out in the current Regulations on the Organisation of the Educational Process at National Pirohov Memorial Medical University, Vinnytsia (https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf).

Students are admitted to final assessment provided that they have no outstanding academic requirements**:** the average grade for ongoing assessment must be at least 3.0 (72 points on the 120-point scale); all final sessions for the content modules must have been completed with a passing grade **(**"3" or higher); and all missed practical classes must have been made up with a passing grade **(**"3" or higher**).** Otherwise, the student must improve their average grade by making up unsatisfactory grades and must make up all missed classes.

Additional Points for Individual Assignments. Students may receive additional points in the discipline for the successful completion of individual assignments, the content of which is published on the Department's website as part of the teaching and learning materials for the discipline. The number of points awarded is determined based on the results of the individual assignment in accordance with the current Regulations on the Organisation of the Educational Process at National Pirohov Memorial Medical University, Vinnytsia**.** (https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf).

Resolution of Conflict Situations

In the event of misunderstandings or concerns regarding the quality of educational services, assessment of academic performance, or other conflict situations involving an instructor, students should first raise their concerns directly with the instructor. If the issue remains unresolved, the student has the right to submit an appeal to the Head of the Department in accordance with the Regulations on the Consideration of Appeals from Higher Education Students at National Pirohov

Memorial Medical University, Vinnytsia (VNMU website → General Information → Key Documents).

Students also have the right to contact the student self-government bodies, the administration of the Faculty (Institute), or the University administration, either directly or through the designated feedback channels ("trust boxes"), links and addresses for which are available on the official VNMU website.

The Department recognises that a student-centred approach entails students' responsibility for the conscious and active acquisition of knowledge and for proper compliance with the rules and requirements established by applicable legislation and VNMU regulatory documents. The Department reserves the right to inform the relevant University bodies of any violations committed by students.

Policy on Blended Learning

The organisation of blended learning is governed by the Regulations on the Introduction of Elements of Distance Learning at National Pirohov Memorial Medical University, Vinnytsia (VNMU website → General Information → Key Documents). The main online learning platforms used for classes are Microsoft Teams and Google Meet.

The procedures for conducting practical classes, lectures, make-up classes, and consultations in the distance learning format are published on the Department's webpage (VNMU website → Department of Pharmacy → For Students/Postgraduate Students → Mode of Study → Year of Study → Teaching and Learning Materials**).**

Communication with the Instructor. Students may contact the instructor via Microsoft Teams chat, messaging applications (Viber, Telegram, WhatsApp), or email**,** as determined by the instructor, during working hours.

9. LEARNING RESOURCES

Teaching and learning materials for the discipline are available on the Department's website. The materials can be accessed via: VNMU website → Department of Pharmacy → For Students/Postgraduate Students.

LITERATURE

Core Literature for Practice in Clinical Pharmacy:

1. Khaitovych MV, Zaichenko HV, Afanasieva IO, et al. Clinical Pharmacology: Textbook. Kyiv: Medytsyna; 2024. 335 p.
2. On Approval of Pharmacist Protocols: Order of the Ministry of Health of Ukraine dated 05.01.2022 No. 7. Database "Legislation of Ukraine" / Verkhovna Rada of Ukraine. URL: https://zakon.rada.gov.ua/go/v0007282-22 (accessed: 31.08.2026). Appendix to the order (revised in 2025): https://moz.gov.ua/uploads/7/35237-dn_7_05_01_2022_dod.pdf
3. Bilovol OM, editor. Clinical Pharmacology: Textbook. Vinnytsia: Nova Knyha; 2021. 544 p.
4. Ritter JM, Flower RJ, Henderson G, Loke YK, MacEwan D, Robinson E, et al. Rang & Dale's pharmacology. 10th ed. Philadelphia: Elsevier; 2024. 872 p.
5. Vanderah TW, editor. Katzung's basic & clinical pharmacology. 16th ed. New York: McGraw Hill; 2024. 1347 p.
6. Olson J. Clinical Pharmacology Made Ridiculously Simple. 6th ed. MedMaster; 2024. ISBN 978-1935660705.
8. Shorikov YeI, Shumko HI, Khukhlina OS, et al. Clinical Pharmacology: Textbook. Vinnytsia: Nova Knyha; 2019. 510 p.

Supplementary Literature for Practice in Clinical Pharmacy:

1. Law of Ukraine "On Medicinal Products" dated 28.07.2022 No. 2469-IX. Version of 05.06.2025. Database "Legislation of Ukraine" / Verkhovna Rada of Ukraine. URL: https://zakon.rada.gov.ua/go/2469-20 (accessed: 31.08.2026).

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2. Dreischulte T, van den Bemt B, Steurbaut S, et al. European Society of Clinical Pharmacy definition of the term clinical pharmacy and its relationship to pharmaceutical care: a position paper. Int J Clin Pharm 44, 837–842 (2022). https://doi.org/10.1007/s11096-022-01422-7
3. Whalen K. Lippincott illustrated reviews: pharmacology. 8th ed. Philadelphia: Wolters Kluwer; 2022.
5. Mir FA, Walker LE, Brown MJ, Sharma P, editors. Clinical pharmacology. 13th ed. Edinburgh: Elsevier; 2026. 744 p.
6. Yakovleva OO, editor. Adverse Reactions of Individual Groups of Medicinal Products: Teaching Manual. Vinnytsia; 2019. 308 p.
7. Yakovleva OO, editor. Modern Clinical Pharmacology and Adverse Reactions of Cardiovascular Medicinal Products: Teaching Manual. Vinnytsia; 2020. 204 p.
8. Nathan A. Non-Prescription Medicines. 2020. 320 p.
9. Posokhova KA, Oleshchuk OM, Korda MM, Shevchuk OO, Cherniashova VV. Drugs side effects. Ternopil: TNMU; 2023. 286 p.

ELECTRONIC RESOURCES

University website: National Pirohov Memorial Medical University, Vinnytsia
Department website: VNMU Departments — Department of Pharmacy
University Library website: VNMU Library
National Scientific Medical Library of Ukraine: National Scientific Medical Library of Ukraine
World Health Organization: World Health Organization (WHO)
Ministry of Health of Ukraine: Ministry of Health of Ukraine
Public Health Center of the Ministry of Health of Ukraine: Public Health Center of Ukraine
English-language database of medical and biomedical literature: PubMed
English-language online resource for physicians and other healthcare professionals: Medscape
State Expert Center of the Ministry of Health of Ukraine: Sectoral Standards and Clinical Guidelines: DEC MOH of Ukraine
State Register of Medicinal Products of Ukraine: www.drlz.gov.ua
National Library of Medicine (NCBI), StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2026 Jan–: StatPearls
Osmosis from Elsevier: Osmosis (YouTube)
Evidence-Based Medicine Bulletin: evidence-update.ua
European Association for Clinical Pharmacology and Therapeutics: EACPT
Pharmacogenetics resource: PharmGKB
Online reporting of adverse drug reactions on the FDA website: FDA MedWatch
Online platform with evidence-based protocols: guidelines.moz.gov
Drug interactions: DynaMed

The course syllabus for the academic discipline "Practice in Clinical Pharmacy" was discussed and approved at the meeting of the Department of Pharmacy (Minutes dated "26" August 2026).

Course Coordinator:

_____  Alona VORONKINA
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Acting Head of the Department of Pharmacy:

_____  Yuliia TOMASHEVSKA
(Cand. Pharm. Sc., Assoc. Prof.) *(Signature)*