



# NATIONAL PIROGOV MEMORIAL MEDICAL UNIVERSITY, VINNYTSIA

## COURSE SYLLABUS

**For the training of master's students**

### **EDUCATIONAL PRACTICE IN PHARMACEUTICAL BOTANY**

|                                |                                                                                                                                                     |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Specialty                      | I8 Pharmacy; Specialisation I8.01 Pharmacy                                                                                                          |
| Educational Programme          | Educational and Professional Programme (EPP) "Pharmacy, Industrial Pharmacy", 2025                                                                  |
| Higher Education Level         | Second (Master's) level                                                                                                                             |
| Academic Year                  | 2026–2027                                                                                                                                           |
| Status of the Discipline       | Mandatory                                                                                                                                           |
| Language of Instruction        | Ukrainian, English                                                                                                                                  |
| Total Workload                 | 3.0 ECTS credits / 90 hours                                                                                                                         |
| Year of Study / Semester       | Year II / Semester IV                                                                                                                               |
| Developer(s)                   | S. D. Kryklyva, Candidate of Biological Sciences, Associate Professor                                                                               |
| Instructor(s), Guest Lecturers | V. V. Rodinkova, Doctor of Biological Sciences, Professor                                                                                           |
| Venue and Contact Details      | Department of Pharmacy, 56 Pyrohova Street, Vinnytsia<br>Telephone: 55–39–52; Email: <a href="mailto:pharmacy@vnmu.edu.ua">pharmacy@vnmu.edu.ua</a> |

## 1. DESCRIPTION OF THE ACADEMIC DISCIPLINE

### ABSTRACT

Educational Practice in Pharmaceutical Botany is a mandatory component of the educational and professional programme in pharmacy and belongs to the professional training cycle for the Master's degree. It comprises 3 ECTS credits and is undertaken at the end of Semester IV of the second year of study.

The programme provides knowledge in Educational Practice in Pharmaceutical Botany required for the successful study of professional disciplines.

The discipline examines the morphological features of plant organs; medicinal and food higher plants, algae, fungi, lichens, and cyanobacteria in different natural and artificial communities; their identification, taxonomic, ecological, community-related and geographical characteristics, and developmental stages; and measures for the sustainable use and regeneration of medicinal plant resources.

Prerequisites for the Educational Component. The course builds on knowledge and skills acquired in Pharmaceutical Botany, Biology with the Fundamentals of Genetics, General and Inorganic Chemistry, Information Technology in Pharmacy, Latin, and Ukrainian.

### PURPOSE AND OBJECTIVES

The aim is to consolidate, broaden, deepen, apply, and supplement theoretical knowledge and practical skills in plant morphology, taxonomy, ecology, community ecology, and geography through educational activities and direct, motivating contact with nature.

#### Integral Competence

The ability to solve typical and complex specialised tasks and practical problems in professional pharmaceutical activities using the principles, theories, and methods of fundamental, chemical, technological, biomedical, and socioeconomic sciences; integrate knowledge and resolve complex issues; formulate judgements based on incomplete or limited information; and communicate knowledge, conclusions, and their rationale clearly and unambiguously to specialist and non-specialist audiences.

#### General Competencies

GC 01. Commitment to environmental conservation.

GC 02. The ability to think abstractly and analyse and synthesise information.

GC 03. Knowledge and understanding of the subject area and professional practice.

GC 04. The ability to adapt and act in new situations and demonstrate initiative.

GC 05. The ability to communicate orally and in writing in the state language and to communicate in a foreign language, primarily English, at a level that supports effective professional practice.

GC 06. Skills in using information and communication technologies.

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

#### Specific Competencies

SC 01. The ability to collect, interpret, and apply data required for professional practice, research, and the implementation of innovative projects in pharmacy.

SC 02. The ability to integrate knowledge and solve complex pharmaceutical problems in broad or multidisciplinary contexts.

SC 20. The ability to organise and carry out the harvesting of medicinal plant raw materials in accordance with Good Agricultural and Collection Practices (GACP), ensuring the quality of medicinal plant raw materials and medicines derived from them. The ability to anticipate and evaluate approaches to the conservation and protection of wild medicinal plant populations in accordance with applicable legislation.

Post-requisites for the Educational Component. The course is a foundational, professionally oriented biological discipline for Pharmacognosy, Medicinal Plant Resource Studies, Educational Practice in Pharmacognosy, Pharmaceutical Biotechnology, and related disciplines. Practical training is conducted through field excursions.

## 2. LEARNING OUTCOMES

Upon successful completion of the academic discipline, the student will be able to:

PLO 06. Communicate professionally in the state language, use oral communication skills in a foreign language, analyse professional texts, and translate foreign-language information sources.

PLO 13. Predict and determine the effects of environmental factors on the quality and consumer characteristics of medicines of natural and synthetic origin and other pharmacy products; organise their storage in accordance with their physicochemical properties and Good Storage Practices (GSP).

PLO 24. Organise and carry out the sustainable harvesting of medicinal plant raw materials. Develop and implement measures for the protection, regeneration, and sustainable use of wild medicinal plant species.

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

#### Full-time Study

| Type of Learning Activity             | Hours |
|---------------------------------------|-------|
| Lectures                              | 0     |
| Practical Training / Field Excursions | 30    |
| Independent Study (IS)                | 60    |
| Total                                 | 90    |

#### Part-time Study

| Type of Learning Activity | Hours |
|---------------------------|-------|
| Lectures                  | 0     |
| Practical Training        | 0     |
| Independent Study (IS)    | 90    |
| Total                     | 90    |

The discipline consists of one module comprising two content modules and nine topics.

#### 4. THEMATIC PLAN

| No.                                                                                      | Module and Topic Titles                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Module 1</b>                                                                          |                                                                                                                                                                                                                         |
| Natural and Artificial Plant Communities of Podillia as Habitats for Medicinal Plants    |                                                                                                                                                                                                                         |
| <b>Content Module 1</b>                                                                  |                                                                                                                                                                                                                         |
| Purpose, Objectives, and Research Methods of the Practice. Artificial Plant Communities. |                                                                                                                                                                                                                         |
| 1                                                                                        | Content of the practice. Methods of botanical, phenological, and plant resource research. Safety rules. Collection, processing, and storage of plant material. Artificial and natural plant communities (phytocenoses). |
| 2                                                                                        | Criteria for plant classification. Plant resources of Ukraine.                                                                                                                                                          |
| 3                                                                                        | Cultivated plants and their propagation. Segetal weeds (weeds of cultivated fields) and quarantine weeds.                                                                                                               |
| 4                                                                                        | Greenhouse plants and houseplants and their propagation.                                                                                                                                                                |
| 5                                                                                        | Artificial plant systems in botanical gardens.                                                                                                                                                                          |
| 6                                                                                        | Urban tree and shrub vegetation. Ruderal weeds.                                                                                                                                                                         |
| <b>Content Module 2</b>                                                                  |                                                                                                                                                                                                                         |
| Natural Plant Communities.                                                               |                                                                                                                                                                                                                         |
| 7                                                                                        | Vegetation of forest plant communities.                                                                                                                                                                                 |
| 8                                                                                        | Vegetation of water bodies.                                                                                                                                                                                             |
| 9                                                                                        | Meadow and steppe vegetation.                                                                                                                                                                                           |

## 5. FORMS AND METHODS OF ASSESSMENT OF LEARNING OUTCOMES

|                                                           |                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ongoing Assessment during Practical Classes               | Methods: oral and/or written questioning and testing, computer-based questioning and testing, and solving situational tasks.                                                                                                                                                                                             |
| Final Assessment of the Academic Discipline – Graded Pass | Conducted during the final practical class and assessed in accordance with the University Regulations on the Organisation of the Educational Process:<br><a href="https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf">https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf</a> |
| Assessment Tools for Learning Achievement                 | Theoretical questions, tests, situational tasks, practical assignments, and 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 Pirogov Memorial Medical University, Vinnytsia.

[https://www.vnmu.edu.ua/downloads/other/polog\\_organiz\\_ocv\\_proc\(2026\).pdf](https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf)

| Type of Assessment                             | Assessment Criteria / Scale                                                                                                                                                                                                                                                                                       |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ongoing Assessment                             | 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 – Graded Pass                 | 71–80 points – Excellent<br>61–70 points – Good<br>50–60 points – Satisfactory<br>Fewer than 50 points – Unsatisfactory / Failed                                                                                                                                                                                  |
| Overall Assessment for the Academic Discipline | Ongoing academic performance: 72–120 points, obtained by converting the average traditional grade for practical classes to the 120-point scale;<br>60% of the discipline grade.<br>Final assessment: 50–80 points; 40% of the discipline grade.<br>Individual assignments: 1–12 points.<br>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                                              |
| 0–121.99                                | FX         | Unsatisfactory, with the possibility of retaking                        | Failed, with the possibility of retaking            |
| 0–121.99                                | 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 Pirogov Memorial Medical University, Vinnytsia ([https://www.vnmu.edu.ua/downloads/other/polog\\_organiz\\_ocv\\_proc\(2026\).pdf](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 Pirogov Memorial Medical University, Vinnytsia; ([https://www.vnmu.edu.ua/downloads/other/polog\\_organiz\\_ocv\\_proc\(2026\).pdf](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 Pirogov Memorial Medical University, Vinnytsia ([https://www.vnmu.edu.ua/downloads/other/pologPhD\\_org.pdf](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 Pirogov Memorial Medical University, Vinnytsia ([https://www.vnmu.edu.ua/downloads/other/kodex\\_akad\\_dobr\\_edit%202026.pdf](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 Pirogov 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), the Law of Ukraine “On Academic Integrity”, and the Code of Academic Integrity of National Pirogov 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 Training**

Students are required to participate actively in the educational process: attend field excursions 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 for practical training 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.

**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 Pirogov Memorial Medical University, Vinnytsia ([https://www.vnmdu.edu.ua/downloads/other/polog\\_organiz\\_ocv\\_proc\(2026\).pdf](https://www.vnmdu.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 Pirogov Memorial Medical University, Vinnytsia ([https://www.vnmu.edu.ua/downloads/other/polog\\_organiz\\_ocv\\_proc\(2026\).pdf](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 Pirogov Memorial Medical University, Vinnytsia ([https://www.vnmu.edu.ua/downloads/other/polog\\_organiz\\_ocv\\_proc\(2026\).pdf](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 Pirogov Memorial Medical University, Vinnytsia. ([https://www.vnmu.edu.ua/downloads/other/polog\\_organiz\\_ocv\\_proc\(2026\).pdf](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 Pirogov 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 Pirogov 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 Educational Practice in Pharmaceutical Botany

**1. Mauseth, J. D. (2021). *Botany: An Introduction to Plant Biology* (7th ed.). Jones & Bartlett Learning.**

Supports plant morphology, classification, reproduction, ecology, and the recognition of major plant groups in both modules.

Official publisher link. [jblearning.com](http://jblearning.com)

**2. Davies, N. M. J., Drinkell, C., & Utteridge, T. M. A. (Eds.). (2023). *The Herbarium Handbook*. Kew Publishing.**

Particularly relevant to collecting, preparing, documenting, processing, and storing botanical specimens, including the preparation of students' herbarium collections.

Official publisher link. [The Kew Shop](http://TheKewShop.com)

**3. Jha, S., & Halder, M. (Eds.). (2023). *Medicinal Plants: Biodiversity, Biotechnology and Conservation*. Springer.**

Provides the pharmaceutical context: medicinal plant diversity, sustainable use of plant resources, conservation, and propagation approaches. Selected chapters are appropriate for this introductory practice.

Official publisher link. [Springer Nature Link](http://SpringerNature.com)

#### Supplementary Literature for Educational Practice in Pharmaceutical Botany

**1. Wheater, C. P., Bell, J. R., & Cook, P. A. (2020). *Practical Field Ecology: A Project Guide* (2nd ed.). Wiley-Blackwell.**

Recommended for planning field investigations, ecological sampling, recording observations, and assessing natural and artificial communities.

Official publisher link. [Practical Field Ecology](http://PracticalFieldEcology.com)

**2. van der Maarel, E., & Franklin, J. (Eds.). (2013). *Vegetation Ecology* (2nd ed.). Wiley-Blackwell.**

Supports the study of phytocenoses, vegetation structure, environmental relationships, and human impacts on plant communities. Relevant to forests, meadows, steppes, wetlands, and urban vegetation.

Official publisher link. [Wiley Online Books](http://WileyOnlineBooks.com)

**3. Hartmann, H. T., Kester, D. E., Davies, F. T., Geneve, R. L., & Wilson, S. B. (2018). *Hartmann & Kester's Plant Propagation: Principles and Practices* (9th ed.). Pearson.**

Covers seed propagation, cuttings, grafting, budding, and propagation environments. Suitable for cultivated plants, greenhouse plants, houseplants, and botanical garden collections.

Official publisher link. [pearson.com](http://pearson.com)

**4. Royal Botanic Gardens, Kew. (n.d.). *Plants of the World Online*.**

An authoritative English-language resource for checking accepted scientific names, synonyms, plant descriptions, and distributions, including species occurring in Ukraine.

Access the resource. [Kew Science](http://KewScience.org)

**5. European and Mediterranean Plant Protection Organization. (n.d.). *EPPO Global Database*.**

Useful for studying invasive alien plants and weeds: identification information, geographical distributions, photographs, and phytosanitary information.

Access the database · [EPPO invasive alien plant lists. eppo.int](http://EPPOinvasivealienplantlists.eppo.int).

### ELECTRONIC RESOURCES

University website: <https://vnmua.edu.ua>

University Library: <https://library.vnmua.edu.ua>

World Health Organization: <https://www.who.int/en/>

Centre for Education Quality of the Ministry of Health of Ukraine: <https://www.testcentr.org.ua/uk/>

Ministry of Health of Ukraine: <https://moz.gov.ua/>

Public Health Center of the Ministry of Health of Ukraine: <https://phc.org.ua/kontrol-zakhvoryuvan>

Plant Cell: [https://en.wikipedia.org/wiki/Plant\\_cell](https://en.wikipedia.org/wiki/Plant_cell)

Plant Cell Anatomy: <http://www.enchantedlearning.com/subjects/plants/cell/>

Plant Cell Structure and Parts: <http://www.buzzle.com/articles/plant-cell-structure-and-parts.html>

Krok 1 Pharmacy: Pharmaceutical Botany. Test 1: <https://testkrok.org.ua/?test=31340>

The course syllabus for “Educational Practice in Pharmaceutical Botany” was discussed and approved at the meeting of the Department of Pharmacy (Minutes No. 1 dated 26 August 2026).

Course Coordinator:

Doctor of Biological Sciences, Professor



(Signature)

Viktoriia RODINKOVA

Acting Head of the Department of Pharmacy:

Candidate of Pharmaceutical Sciences, Associate Professor



(Signature)

Yuliia TOMASHEVSKA